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Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Fifty-second Annual Session, Lynchburg, Va., October 18-21, 1921

VOL. 48, NO. 5
WHOLE NO. 830

RICHMOND, VA., AUGUST, 1921

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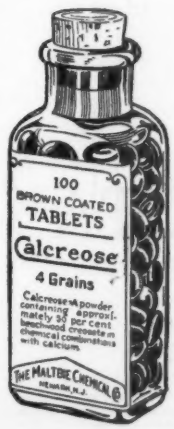

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VOL. 48, NO. 5. WHOLE NO. 830. RICHMOND, VA., AUGUST, 1921. $2.00 A COPY 20 CENTS A YEAR

Original Communications

THE LATE RESULTS OF A SERIES OF HEAD INJURIES.*

By C. C. COLEMAN, M. D., F. A. C. S., Richmond, Va.

From the Department of Neuro-Surgery, Hospital Division Medical College of Virginia (Head Trauma Series, 1920).

This paper is concerned with a study of fifty-two patients with symptoms of at least twelve months' duration, attributed by the patient in every case to previous injury to the head. The average time intervening between the injury and the period of observation was approximately two and a half years.

A critical analysis of the series was undertaken primarily as part of a study to determine the type of immediate treatment of head injuries, which will not only insure a low mortality, but also give the patient the best protection from late complications.

Patients complaining of an old brain injury frequently present no tangible evidence of the lesion which is in most cases as much a cause of real disability as many of the more obvious lesions in other parts of the body. The greatest difficulty in the interpretation of symptoms of these patients as a class, arises from the acquisition by them of what appears to be a marked functional disturbance, but it is not accurate to classify such patients as neurotics because of inability to demonstrate the underlying cerebral pathology. The frequency with which the syndrome of headache, vertigo, dispositional changes and even epilepsy develops after head injuries may justify the assumption that the injury produced certain organic changes in the brain. It may be that patients with such pathologic changes more readily develop neuroses and have a heightened susceptibility to the influence of suggestion which in the beneficiaries of compensation laws may be very troublesome.

*Read at the meeting of the Southern Surgical Association, Hot Springs, Va., December, 1920.

In the present report, seven patients are eliminated because of a lack of opportunity for detailed study. Certain general observations on this omitted group are included with the discussion of the remaining forty-five who were studied under more favorable conditions.

This latter group includes forty-one men and four women. Thirty-seven of the patients had received head injuries such as are common in civil or industrial life, while seven had been wounded by projectiles during military service.

According to the histories as given by the patients, the primary injury varied from a blow without demonstrable fracture of the skull to a destructive lesion of the brain substance itself with loss of extensive areas of scalp and bone. The incidence and duration of primary unconsciousness in injuries without demonstrable fracture and those with extensive trauma is practically the same.

The practical classification of Ingham[1] by which the patients are divided into three groups based upon the immediate effects of the injury upon consciousness is adopted.

Group 1. Consciousness retained.

Group 2. Consciousness lost for less than 24 hours.

Group 3. Consciousness lost for more than 24 hours.

This classification, while focusing attention upon only one immediate effect of head injuries, is very satisfactory in view of the meager primary observations often made on this type of lesion.

Group 1. There were eight patients in whom unconsciousness did not follow their injuries. All of these patients complained of symptoms referable to cerebral disturbance, and the complaints ranged from major epilepsy to general nervousness. One patient of the group had an extensive penetrating injury of the frontal region with retained foreign bodies and, at the time of study, was having severe headaches and major epilepsy. The remaining seven patients of the retained consciousness

group had injuries in the following regions: 3 parietal, 2 occipital, and 2 frontal. In this group, although some of the patients were severely injured, the concussion phenomena must have been absent, inasmuch as the immediate loss of consciousness from head trauma is usually ascribed to it.

The incidence of late symptoms of this group is high, however, as shown by the development of epilepsy in three, annoying headache in seven, and a residual focal symptom in 1 (hemiparesis).

Group 2. Nineteen patients were unconscious from a few minutes to about twenty-four hours after the injury. In the absence of neurologic data based on a study of these patients at the time of injury, it is impossible to assign the causes of unconsciousness in some of them beyond the time when concussion effects should have disappeared. The duration of the effects of concussion alone is not always easy to determine, however, and little is really known of the degree or variety of the cerebral disturbance which concussion may produce.

Sixteen of these patients complained of troublesome headache, several had disturbance of memory and changes of disposition, and five had epilepsy.

Group 3. Eighteen of the patients of the series were unconscious immediately following the injury for more than twenty-four hours. The familiar symptom group of head trauma—vertigo, headache, lapses of memory, and inability to concentrate—was present in most of the patients, and nine have had epileptic convulsions after the recovery from the early effects of the injury. The prolongation of unconsciousness in this group beyond the twenty-four hour period and in some cases for more than two weeks must have been due to some structural changes in the brain in excess of those usually attributed to concussion. Hemorrhage and cerebral edema were the most probable results of the violence done to the brain tissues in these patients.

The unconsciousness initiated by the concussion was doubtless maintained by the development of edema and compression. In some cases of this group there was destruction of brain tissue by a penetrating missile. Nine, or half of them, had early operations and five of the series had cranial defects. Three patients of this group have permanent focal symptoms indicating local brain destruction.

A number of general observations have been made upon the series as a whole. Many of the patients stated that they were unconscious for a few minutes only following the injury, but impairment of memory for varying lengths of time was common, and headache and vertigo were almost invariable during convalescence.

All of the patients of the three groups came for treatment of disabling symptoms of one kind or another, usually headache, vertigo, and other late manifestations of the trauma syndrome. Psycho-neurotic complexes and anxiety states were found in only a small percentage of the cases. The symptoms complained of by the patient during the period of observation were found in patients who had received apparently mild as well as severe injuries, and often there were relatively slight late symptoms in patients with extensive injuries.

Those patients with destructive lesions of the brain and permanent focal symptoms showed less general subjective disturbances than many others who had no demonstrable lesion. Twenty-three, or about half of the cases, had a fracture of the skull. Two of the eight gunshot patients had epilepsy and one other patient with a penetrating injury gave a history of severe general convulsions. Early operations had been done on fifteen patients and of these three had epilepsy. The remaining thirty had not been operated upon for the injury, and of these fourteen had epilepsy.

Among four patients who had primary subtemporal decompression, presumably for basal or bursting fracture, none had epilepsy. Eleven patients of the series showed an increased and persisting intracranial tension, which was recognized by blurring of the discs and a definite rise of spinal fluid pressure. Hyperactivity of the deep reflexes was the rule in the series, and it appeared to be true that involvement of the deep reflexes of the upper extremity indicated a greater cerebral disturbance than that of the leg alone.

In attempting to assign a pathologic basis for the patients' late disabilities, the following early effects may be mentioned: concussion, hemorrhage and edema, destruction of brain tissue, cranial defects, and instability of the nervous centers antedating or caused by injury. Naturally, there must be a large speculative element in attributing a satisfactory physical basis to conditions which either disturb consciousness or produce late cerebral impairment,

and especially is this the case when the lesion affects a silent area, or when gross evidence of structural damage is absent. The problem is simpler when a non-silent area, such as the motor cortex or visual area, is involved.

It is interesting to note that nineteen patients of the series were beneficiaries of compensation laws, and in this study an enort has been made to determine the influence of compensation upon the degree of extension of disability. The method of compensation, by which the patient receives a weekly allowance during the period of disability, certainly seems to act as a stimulus to the prolongation of disability in those with pretraumatic nervous instability. Such patients may be influenced by relatives or others to believe that all head injuries produce incurable effects so that the problem often becomes one of great intricacy.

In other patients, between the fear of becoming helpless if work is resumed and compensation stops, and the certainty of State aid if disabilities continue, there is created a condition intolerable to the patient. The situation is often met by continued invalidism. This aspect of the subject is one of great economic importance, because the number of compensated cases in industrial life is rapidly increasing. In the series reported, several patients gave the impression that compensation was at least a subconscious obstacle to the return to work, but by far the large majority were anxious to resume their occupations, and were discouraged by the persistence of disabling symptoms. The results of psychoanalysis of these patients were inconclusive. Similar disturbances were found in the non-compensated cases with injuries at least grossly equivalent. The payment of compensation does not always terminate these traumatic neuroses which have been designated "Conduct disorders" by Dana[2], and "Compensation Hysteria" by the Germans.

Some point may be given to the discussion of this phase of the subject by a comparison of the compensation statistics of Germany and Denmark prior to the war. In Germany, less than 10 per cent. of injured patients with functional nervous disturbance ever returned to work, while in Denmark about 93 per cent. of such patients resumed their occupations.[3] The German compensation laws were similar to our own, while in Denmark the patient receives a prompt and final cash compensation after investigation by a disability board. The Denmark law appears to possess some advantages, provided competent study is made of the patient's disability before the final settlement is made.

It has been interesting to learn from some of the histories that the patient was permanently impressed by the physician's advice as to the necessity of leading a quiet life, free from excesses of all kinds, avoidance of fatigue, the hot sun, tobacco and alcohol. The fact that the patient had often conducted his life along lines exactly the reverse of those contemplated for his future, apparently served to erect a psychoneurotic addition to an organic injury. Briefly stated, the advice usually given to and sometimes followed by patients with head injuries may tend to produce the very condition of functional disability which the patient is most anxious to avoid. It appears desirable that advice to recently injured patients as to future living habits be formulated upon a study of the patient as well as the character of the injury.

The incidence of post traumatic epilepsy is variously estimated. Neuhof[4], in a recent article, says that he has had "statements of epilepsy" from three patients in a series of 175 head cases observed or operated upon in France. This surprisingly low percentage may be compared with 12.5 per cent. reported by Frazier and Ingham[5] from the Cape May series, and 70 per cent. from the reports of Villandre[6] in 1917.

In the small series here reported there were seventeen cases or an incidence of 31 per cent. One observation which may be made on this phase of the subject is at least suggestive. Epilepsy or epileptoid states occurred in fourteen patients who received no operation for the injury (47 per cent.). In fifteen patients who had early operation there were three patients with this diagnosis (20 per cent.). In four patients who had had severe injuries and who had decompression operations early, epilepsy has not yet developed, although the injuries were received at least four years before these observations were made.

In two of the non-operated epileptics there were extensive fractures radiating into the sella, and these cases appeared to be benefited by pituitary extract. One epileptic patient had a foreign body removed from the frontal lobe, and cranioplasties were done in two. In

one case a negative exploration of the motor cortex was performed on account of suggestive focal symptoms. The present tendency appears to regard surgical operation as having a very limited field of usefulness in the treatment of traumatic epilepsy.

A brief reference will be made to the surgical treatment of the patients of this series. Cranioplasty was performed on six patients for deformity or subjective symptoms. The autogenous cranial transplant was used with satisfactory results in all cases. Subtemporal decompression was performed on three patients who complained chiefly of headache and who showed evidences of intracranial tension in the fundi, and who had a continuing elevation of spinal fluid pressure. These three patients were always relieved temporarily by lumbar puncture, and this observation suggested the propriety of a permanent decompression. A foreign body (shrapnel) was removed from the frontal lobe of one patient. Indurated, painful scars were excised in two cases. Syphilis was a complication in two of the patients. There was no evidence of the influence of focal infections upon their disability in any of these patients, although a routine search was made for the usual foci. Lumbar puncture was done routinely in all cases, provided a complete neurologic examination did not indicate excessive intracranial tension. A number of patients, with slight elevation of spinal fluid pressure, appeared to be considerably benefited by the withdrawal of spinal fluid, and this procedure is to be recommended for relief of the headache and general nervous tension which some of these patients have.

The treatment of old head injuries is difficult because so little is known of the real nature of the primary lesion and the subsequent development of the injury. The study of these old injuries with their crippling disabilities naturally leads back to a consideration of the primary treatment. It is in the early stage of the injury that proper treatment will give the best permanent results. The war experience tends to strengthen the belief that decompression operations are rarely needed for cerebral injuries. In dealing with gunshot wounds, the attention of the surgeon was focused primarily on the prevention of infection and the removal of foreign bodies. The question of compression from edema, if requiring special consideration, was by no means of equal importance with that of infection. A study of the methods used with such brilliant results by Cushing and others in the early treatment of head wounds indicates that a decompressive effect was an essential though admittedly a minor result of every intradural operation for the prevention of infection and the removal of foreign bodies and devitalized brain. There can be no doubt that the thoroughness with which this work was done not only produced an astonishing reduction of primary mortality and early complications, but also diminished the number and severity of late complications. The decompressive effect consequent upon debridement and removal of foreign bodies, although a mere by-product of a larger purpose, may have been a very important factor in offsetting compression from meningo-cortical hemorrhage and cerebral edema. In the patients of this series in whom no primary operation was performed, the late disabilities have appeared to be in excess of those developing in patients who received some form of cerebral decompression.

By analysis of the series reported, and the application of the observations to a parallel series of acute head injuries observed during the same period, it has seemed that the study has yielded some results which must be left to a larger number of cases to confirm or contradict. The impressions derived from the study may be included in the following summary:

(1) The incidence or severity of the late results of head injuries cannot be predicted upon the type or degree of an acute injury.

(2) Epilepsy as a late complication in the series reported has lessened incidence in the cases with early operation. To have value, this observation must be substantiated by a larger series.

(3) Compensation has a direct influence upon the development of post traumatic neuroses, but this influence can be determined only by careful neurologic study.

(4) The prevention of late effects of head injuries is closely linked with the early treatment and after care.

(5) The pathology and evolution of many head injuries of civil life are as yet impossible of demonstration by present methods.

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503 *Professional Building.*

LARYNGEAL TUBERCULOSIS WITH SPECIAL REFERENCE TO SUNLIGHT TREATMENT.*

By FRANK B. STAFFORD, M. D., Blue Ridge Sanatorium, Charlottesville, Va.

During the last few years, increasingly more attention has been paid to laryngeal tuberculosis and, as a result, greater importance is being attached to its diagnosis and treatment. It is no longer considered an inevitable or hopeless condition, but one that can be greatly ameliorated or even arrested, if detected and treated in the early stages. Laryngeal tuberculosis is the most frequent complication of pulmonary tuberculosis and, as our knowledge of this infection increases, the less excuse and occasion there will be for allowing such a serious condition to develop unrecognized, until there is extensive destruction of tissues and it becomes incurable. Even in the absence of any symptoms referable to the throat, justice to the patient demands a careful laryngeal examination. This is especially true in tuberculosis work. With inspection of the larynx a part of our routine physical examination, and with a better knowledge of early tuberculous lesions of the throat, we shall be able to recognize them at a stage when they are still amenable to treatment, and offer a better ultimate prognosis.

It is a mistaken idea that great skill is required in making a laryngeal examination. With the necessary equipment and a little practice one may soon learn to detect early lesions. A laryngologist will, of course, be able to make a more minute inspection, to recognize less marked changes from the normal and give a more accurate interpretation of his findings. At the same time, the impression obtained from personal observation is more vivid and lasting than one derived from another's report.

*Read before the Albemarle County Medical Society.

The frequency with which laryngeal tuberculosis accompanies pulmonary involvement varies according to the observer and the material studied. Dworetzkey[1] reports 25.6 per cent. out of five hundred cases examined at the Otisville Sanatorium, an institution for early cases. According to Robert Levy[2] the incidence is higher than this, he having found that in one-third of his cases there was laryngeal involvement. The report of the Phipps Institute[3], noting the autopsy findings in subjects who had died of pulmonary tuberculosis, cited laryngeal involvement in 48 per cent. of the cases. In early cases of pulmonary tuberculosis, the percentage is usually much lower. In 200 cases examined at Blue Ridge Sanatorium, a diagnosis of laryngeal tuberculosis was made in twenty-five, or 12.5 per cent. Unless frequent examinations are made, it may happen in some cases that laryngeal tuberculosis occurs and, with the improvement of the patient's general and pulmonary condition, becomes healed without ever having been recognized or noted.

The symptoms of early laryngeal tuberculosis may be slight or absent, unless there is a definite or moderately advanced lesion. Hoarseness or huskiness is usually the first symptom noted by the patient; although weakness of the voice frequently exists for some time. In some cases a sense of dryness, tickling in the throat, and a constant desire to cough are the earliest manifestations. Minor[4] describes as one of the earliest symptoms a sensation of a lump in the throat that cannot be swallowed. Pain may occur at any stage, though usually is complained of when there is ulceration and more or less diffuse infiltration. Hastings[5] says that in his experience the forms of lesion that cause the most pain are deep seated infiltrations of the arytenoids and arytenoid-epiglottic folds. A recent case at the Sanatorium was one in the last stage of pulmonary tuberculosis. About four weeks before death she began to complain of a lump in the throat, dryness, slight hoarseness and pain which became so severe she finally refused all food, in spite of local anaesthetics and other measures administered to relieve this condition. Laryngeal examination showed only general pallor with a slight grayish elevation in the interarytenoid space. At autopsy the only lesions in the larynx that could be demonstrated macroscopically were grayish elevations in the

inter-arytenoid fold and a few scattered tubercles on the vocal chords.

Pallor of the laryngeal structures is usually considered the earliest sign, but its significance is frequently unrecognized because it is ascribed to general anaemia often associated with pulmonary tuberculosis. Probably the most common lesions are those in the inter-arytenoid space, which may be in the form of grayish elevations, or consist of only circumscribed patchy congestion. Associated with this there may be some injection and engorgement of the chords and arytenoids. On the other hand, as in tuberculous patients, the mucosa of the upper respiratory tract is often congested and the site of chronic catarrhal conditions which will frequently cause confusion. If, however, it be due to this it will soon clear up under local treatment. At this stage of simple hyperemia, laryngeal tuberculosis may under good hygienic conditions undergo resolution and repair. If the condition remains unrecognized and the patient is allowed to go on with the usually co-existing pulmonary condition untreated, infiltration continues, ulceration and sloughing take place, and the process sooner or later becomes disseminated. The epiglottis and other adjacent structures become involved. Of course, at this stage a diagnosis is easily made. In addition to the above pathological lesions, many others may occur, but the time allotted to this paper will not permit a more detailed description, and only the more common ones have been noted.

The treatment must be governed in a measure to suit the individual case. The general hygienic treatment is of the utmost importance. It is generally admitted that laryngeal tuberculosis is invariably secondary to a pulmonary lesion, and to attempt to treat the larynx without some attention to the general measures used in tuberculosis is a grave mistake. This can best be carried out in an institution where the patient is under constant supervision. The prognosis will ultimately depend on the extent of the pulmonary foci. If there is much softening and caseation, the patient should be confined to bed under the best hygienic conditions, and at the same time as much attention as necessary given to the treatment of the larynx.

It is interesting to note here that it happens not infrequently that patients are referred to a laryngologist for a throat examination; that the condition of the larynx is the first sign to arouse suspicion of pulmonary tuberculosis, and leads to the patient being referred back with the advice to have a chest examination made, or to have the sputum sent to a laboratory. In other words, the throat condition may be the first *manifestation* of a pulmonary tuberculosis hitherto unsuspected.

Since the main object of this paper is to deal with sunlight treatment, other measures will merely be mentioned briefly. In every case, absolute rest of the throat and voice is of prime importance. Tuberculin therapy, alcoholic injections of superior laryngeal nerve, alkaline sprays, astringents, local anaesthetics, gomenol instillations, and similar preparations have a definite place in the management of such cases. A very important factor is the phychological management of the patient. In this as in all other phases of tuberculosis work, if the greatest good is to be accomplished, and the best results to be obtained, the patient must be made to feel that his individual problem is the one being considered. Lack of co-operation on his part will not only make the case difficult, but also defeat the ultimate outcome of the treatment.

Sunlight was first used in the treatment of laryngeal tuberculosis by Joseph Sargo[6], physician-in-chief of the Alland Sanatorium at Davos, Switzerland. Knowing that good results had been obtained in surgical tuberculosis from sunlight treatment, and feeling the need of some more effective measures in laryngeal cases, he began to study this problem, and devised a system of mirrors for the purpose of reflecting the rays of the sun directly on the larynx. This method was simple but crude. The patient sat with his back to the sun, and held an ordinary hand mirror so as to reflect the sunlight upon a laryngeal mirror held in position in the mouth. This mirror reflected the sun's rays upon the diseased larynx. His results were excellent, but he realized that damage might be done to the laryngeal tissues by excessive application of heat rays and the consequent hyperemia. Various improvements were added to the apparatus until Mr. Verba[7], of Colorado Springs, then a patient at Cragmore Sanatorium, suffering from a seriously diseased throat, determined to work out a method of treatment that would filter out and eliminate the heat rays from sunlight but allow the actinic violet, or ultra-violet rays to pass

into the larynx. He began a series of experiments and, after months of study with the physical properties of various reflecting substances, devised an alloy of aluminum and magnesium. This mirror was tried on his own throat and soon effected a cure. In many cases the reflection of the ultra-violet rays upon the diseased larynx soon relieved the pain, was soothing, and it was believed to have a stimulating effect on the formation of scar tissue.

The apparatus employed consists of the special mirrors for condensing and reflecting the sunlight upon the larynx, also an observation mirror of glass which is placed in front of the patient for the purpose of observing his own larynx and directing the sun's rays onto the diseased parts. The mirrors are arranged on a special apparatus which provides for adjustments and can be conveniently placed on the back of a chair just in front of the patient.

Sunlight strikes metallic reflector "A", where it is condensed and projected onto metallic laryngeal reflector "C", thence upon larynx. The image of larynx returns to observation mirror "B", and then to eye.

A metallic alloy mirror similar in size to that of an ordinary laryngeal mirror is held in the mouth by the patient. At the same time the tongue is held out with a gauze handkerchief. By observing his throat in the glass observation mirror, the patient soon learns to reflect the sun's rays from the metallic alloy mirror on the chair to that in his throat and then on the larynx. After a thorough explanation of what is to be done and with a little practice the patient soon learns to treat his own throat.

Short exposures must be made at first, beginning usually with one-half minute twice daily and gradually increasing until two and three minute periods have been reached. Great care must be exercised to avoid too long exposures until the larynx has become accustomed to the light, otherwise some hyperemia and pain will develop. In a personal communication, Dr. Charles E. Atkinson[8], of Banning, California, states that he has found the sunlight treatment quite helpful in certain cases of throat tuberculosis, but that it is very important to guard against unduly prolonged treatments. He thinks that short exposures are stimulating, but too long exposures have a tendency to break down tissue. One of the greatest difficulties we have had to contend with is the cloudy weather which prevails in the East. Especially is this true throughout the winter season. If, after several exposures have been made and the treatment is well under way, there come several days in which no direct sunlight is available, the treatment must, of course, be discontinued, only to be started again with minimal exposures.

While our experience with sunlight treatment has been limited, our results have been most encouraging. Out of seven cases treated at the Blue Ridge Sanatorium, four have shown a definite improvement. In the remaining three no improvement was noted, but their chest conditions were well advanced and their general condition so unfavorable that it would not permit their sitting up for the successful and practicable application of the treatment. It is well to note that out of the four that were benefited two had only slight lesions of the throat, but were suffering from active pulmonary lesions. The remaining two had extensive ulceration and destruction of the laryngeal structures and extensive pulmonary lesions as well.

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OPIUM—ITS USES AND ITS ABUSES.*

By G. CHAMBERS WOODSON, M. D., Richmond, Va.

We, as medical men, lay so much stress upon diagnosis and our diagnostic ability and skill that at times, I fear, we pay too little attention to treatment; more especially not giving due credit to the drug or to the treatment instituted.

I have selected for discussion tonight one drug, and I am sure this one product of the plant kingdom has relieved more suffering and pain than all other drugs, and all other remedial measures combined. If the entire materia medica at our disposal were limited to one drug, that is, if we had to choose only one drug from the entire lot, I am sure the majority of us would choose opium; and I am convinced that if we were to select, say half a dozen of the most important drugs in the Pharmacopeia, we should all place opium in the first rank.

In selecting this subject for the evening, I trust that none present will misconstrue my motive and think for a moment that I am trying to mitigate the importance of a thorough diagnosis, or am advocating the use of this remedy promiscuously, or in every case of pain; for I do realize its baneful and habit-forming qualities.

The medical properties of poppy-juice date from a remote period, and yet not so far back in antiquity as we might expect, for the earliest definite and authentic references to it are found only in the Greek and Latin literatures.

The original home of the poppy was in Asia Minor. From there it was carried to Greece at a later period.

The name opium is derived from the Greek word meaning juice. It is supposed to have been brought to China first by the Arabs, who are known to have traded with the southern parts of the empire as early as the ninth century. Later, the Chinese began to import the drug in their junks from India. At that time, it was used by them exclusively as a remedy for dysentery. It was not before the second half of the eighteenth century that the importation of opium began to increase rapidly through the hands of the Portuguese, and a little later through the famous East India Company. In 1770, the English established an opium depot in Lark's Bay, south of Macao, and the traffic rapidly increased, so that very soon the Chinese authorities began to complain, and in 1820 an edict was issued forbidding any vessel having opium aboard to enter the Canton River. A system of contraband followed, then political friction between England and China, and the so-called Opium War, which culminated in the Treaty of Nankin (1842) by which five ports of China were opened to foreign trade, and in 1858 opium was admitted as a legal article of commerce. By that time, the vice of opium smoking had spread like a plague over the gigantic empire, and became so deeply rooted that, in spite of innumerable edicts and decrees, all efforts to check its growth have been powerless. A poor sort of missionary work by the enlightened West among the heathen Orientals! Today, opium cannot be grown in China, nor legally imported; there is, though, quite a lot smuggled in through Japan.

Since the time of Galen, the use of opium was continued in a disguised form in various concoctions and confections containing so many ingredients that the distinction between the important and useless could not be discovered, and the value of the drug was overlooked, except by a few brighter minds.

The famous physician of the middle ages, Philippus Aureolus Theophrastus Bombast von Hohenheim, commonly known as Paracelsus (1493-1541), owed much of his success to the bold way in which he administered opium to patients. He is said to have carried opium in the pommel of his saddle and called it the "stone of immortality." His followers were as enthusiastic as himself over the virtue of opium. Platerus of Basle, in 1600, strongly recommended it, and Sylvius de la Boe, a famous Dutch physician, declared that without opium he could not practice. The celebrated chemist and physician, Van Helmont, about 1640, used it so frequently that he was called Doctor Opiatus, and Sydenham, about 1680, writes that "among the remedies which it has pleased Almighty God to give to man to relieve his sufferings, none is so universal and so efficacious as opium."

*Read at the regular meeting of the Church Hill Medical Society, Richmond, Va., January 27th, 1921.

The name "laudanum," attributed to Paracelus, is supposed to be derived from the Latin "laudandum," "something to be praised."

Among the alkaloids of the morphine-codeine group not contained in opium, but prepared artificially in the laboratory, are:—(1) Heroine, or diacetyl morphine. (2) Dionin, or ethyl-morphine hydrochloride. (3) Peronin, or benzyl-morphine hydrochloride. (4) Apomorphine, derived from morphine by dehydration. (5) Apocodeine, derived from codeine by dehydration.

Opium contains a number of alkaloids, the most important of which are morphine, narcotine, codeine, thebaine, papavarine, narceine, laudanine, pseudo-morphine, cryptopine, and an acid,—the meconic acid. Of all of these alkaloids, morphine and codeine demand the closest investigation and study. Morphine, the most important of all these constituents, appears as colorless, or white, shining crystals, or crystalline powder, odorless, of bitter taste, alkaline reaction, slightly soluble in cold water, soluble in five hundred parts of boiling water, in one hundred parts of alcohol, and thirty-six parts of boiling alcohol.

Codeine is most generally found in combination with meconic acid, and may be separated from morphine by an alkaline solution. It occurs in white or yellowish-white translucent rhombic prisms, is odorless and of slightly bitter taste. It is soluble in eighty parts of water at 59 degrees F., in seventeen parts of boiling water, freely soluble in alcohol and chloroform, and soluble in about six parts of ether.

Heroine, or diacetyl morphine, like codeine, is less strongly hypnotic and analgesic than morphine and is more of an excitant to the spinal cord. It differs from codeine, however, in being relatively far stronger as a respiratory depressant, acting, in fact, much more powerfully on the breathing centers than morphine itself. There is a decided increase in the respiratory rate, with prolongation of inspiration and an increase in the force of expiration. Eliminations of bronchial secretions are thereby promoted, thus aiding in the relief of dyspnea (Hyams). Habit formation is decidedly easy in the case of heroine, though, when the habit has been acquired, it can often be more readily broken—by substitution of codeine—than in the case of morphine. Though heroine is used chiefly to allay cough, Bastedo's systematic clinical trials, in which the effects of 1/12 to 1/6 grain (0.005 to 0.01 gm.) of heroine hydrochloride were compared with those of doses of pure codeine three times as large, appeared to show a superiority of the latter, both in allaying cough, overcoming pain, and promoting sleep (in pulmonary tuberculosis). Nausea and constipation were also noted in several instances, though, as compared to morphine, heroine is reputed to have less effect in checking secretions and peristalsis.

Opium may be classified as a hypnotic, a narcotic, an analgesic, an antispasmodic, a tonic, a diaphoretic, and a diuretic. If opium is taken in small medicinal doses, the first effect noticeable is that of a general feeling of quietness and rest. Most usually we find a decline in the activity of the mental faculties, although it has been repeatedly observed that in some persons, who have a peculiar idiosyncrasy against this drug, the mental faculties may become markedly excited. After a short time, varying according to the peculiarities of the patient, the hypnotic influence of opium is observed, the sleep produced being either light and natural, or of a heavy and stuporous character, depending to a great extent upon the previous condition of the patient, the mode of administration, and the amount of the drug taken. After the hypnotic influence of this drug has worn off, we may observe quite frequently a state of depression pointing most markedly towards the gastro-intestinal tract, and such symptoms as headache, nausea, vomiting, and even purging have been repeatedly observed to follow the administration of even very small doses of opium. If these small doses be continued over a longer period, all these symptoms may become exaggerated, and we may reach a stage in which administratior of small doses of opium may either prove very harmful or be of no benefit at all. When medium large doses are taken, the symptom of well-being becomes markedly exaggerated, and we may then find a great similarity in the symptoms, with effects similar to those resulting from the taking of cannabis indica—visions of a pleasant character, dreams during which images and scenes which have a tendency to revive the patient's spirits have been quite frequently noted—and it is especially this stage which helps the patient, not yet a fully confirmed opium fiend, to fall into the habit of taking the drug regularly.

If very large doses of opium are taken, the primary symptoms may be entirely lost, the patient immediately relapsing into a deep

sleep, markedly resembling coma. We observe then a flushed face, a pulse bounding and strong, skin usually dry and warm, although at times cold and clammy, respiration slow and stertorous, and the significant symptom of opium-poisoning—namely, contracted, pin-point pupils. All these symptoms resemble to a great extent cerebral congestion. The coma is deep, and it is only with the greatest difficulty that the patient can be roused, only to again relapse quickly into this former state. If the patient is permitted to remain in this condition, he very soon becomes prostrated, the coma grows still deeper—in fact, so deep that arousing the patient is an impossibility—the respiration becomes slow and feeble, the face is pallid, the pulse becomes rapid and more feeble, the skin is cold and clammy, and the pupils, which during the entire stage have been markedly pin-point, suddenly dilate—the symptom of death. If death occurs, it is always due to failure of respiration. This is the usual course of a typical case of acute opium-poisoning, but it is by no means the only effect observable when dealing with toxic doses of opium.

Upon respiration opium has a decided influence. It is a direct poison to the respiratory centers. The formation of carbonic acid gas, so peculiar in opium-poisoning, is due to the direct influence of opium upon the muscles, as may be recognized by the fact that during coma an increase of the gas has been observed, while in such cases of opium-poisoning, during which violent movements are observed, the amount of carbonic acid gas is decreased. Contraction of the pupil, always present in opium-poisoning, is due to a stimulation of the oculo-motor nerve-centers, the dilatation observable just as death ensues being caused by paralysis of these centers.

The question of the action of opium upon the kidneys is one still under discussion, but practically it is recognized that wherever there is a decrease in the amount of urine, as, for example, in chronic Bright's disease and uraemia, opium is contraindicated. Upon the intestines opium acts in small doses by diminishing the peristaltic movement; in large doses, by increasing it.

Opium may be satisfactorily administered either by fluid or solid preparations, generally by the mouth. Where relief of only moderately severe pain is required, small doses of tincture of opium or codeia, gr. ⅛ to ½, may be used with success. In severe pain, on the other hand, hypodermic injection of morphine is advisable, a much more prompt effect being produced, with relatively less influence in arresting intestinal activity and impairing appetite. Where diaphoresis is the end in view, Dover's powder, or some other combination of opium with ipecacuanha, is generally given preference. For astringent effects, opium should be administered in small doses in the form of the camphorated tincture (paregoric) or in conjunction with chalk or one of the true astringent drugs. If a prolonged sedative as well as astringent effect on the bowels or stomach is to be procured, opium pills are particularly suited, not being dissolved and absorbed as rapidly as the fluid preparations of the drug. Suppositories of opium and belladonna may be advantageously used in dysentery and irritative disease of the rectum. Where, on the other hand, a hypnotic effect is demanded, opium may be advantageously given with other soporific drugs, such as chloral hydrate, veronal, or trional, its unpleasant by-effects being therefore reduced, owing to the relative smallness of the dose employed. In general, opium or morphine, used by the mouth, should be taken some time after meals.

There is probably no drug which has such wide range of usefulness, and no drug which is more generally abused, than opium or its alkaloid morphine. The tendency of the physician to use or prescribe these drugs as a ready means to overcome pain and many other symptoms especially benefited by opium has only too often proved the first step towards the acquisition of a habit, destroying its influence.

Again, the physician with a hypodermic syringe always at hand is only too ready often to administer the alkaloid, obtaining temporary relief, satisfying for the time being the patient, without any thought that this dose may be the beginning of a career of morphomania. Paregoric, or the camphorated tincture of opium, is a household remedy and, lacking in few homes (owing to the ease with which it may be obtained), is made use of on the slightest occasions. Again, infant remedies, such as patent medicines and proprietary drugs, employed as soothing syrups, contain a greater or smaller percentage of the preparations of opium. Despite its general use, people at large are entirely ignorant of the maximum dose permissible or of the ill effects and results following its administration. A child suffering

from colic or crying becomes soon quiet by the administration of paregoric or one of the "soothing syrups." The administration of two or three doses, to achieve this result in a short time, is by no means rare. As a result the child becomes quiet and falls asleep—a sleep from which it may never awaken.

Again, insomnia, so frequently found in brain-workers, men of intellect, calls for the hypnotic influence of opium. Finding that the desired result is quickly obtained after its ingestion, on future occasions the drug may again be resorted to, to give much-needed rest until, finally, without it, sleep becomes an impossibility and the result a fully established habit. There are so many ways in which this habit may be acquired that it is impossible to enumerate them, but one particular method, being of such common occurrence, especially in the Oriental countries, it may be well to mention—namely the smoking of opium. Opium, as it is smoked by the Chinese, is rolled into a small ball, probably the size of a small pea, and placed in the pipe, the bowl of which is heated over a flame. The effect upon first smoking opium is entirely different from the experience of confirmed opium-smokers: At first there is extreme nausea, followed by a stupor which is associated with hallucinations of a very unpleasant character. Floating apparently before the eye are visions and images hideous to behold. This, in turn, is followed by a gradual quietude and sleep. When this habit is continued these symptoms change. There is with the first inhalation of the opium fumes a feeling of well-being, a sensation of rest, appearances of most pleasant beautiful images and visions, and, in general, a condition which to the weak is an incentive to the further use of the drug.

Opium-eaters, opium-smokers and, in fact, all persons addicted to the use of this drug soon present a very peculiar appearance. The face is sallow, the eyes are brilliant but sunken, the body emaciated, the skin dry and harsh, the mental faculties become dulled, and the person, if before its use honest and upright, soon becomes the reverse. Immorality to the extreme is always observed in opium habitues. The desire to get the drug becomes so strong that he will stop at nothing to obtain it, theft being considered a very legitimate way of procuring the desired article. An opium habitue is a person upon whose veracity you can never rely and, to use the words of one of our best known American practitioners, "The opium fiend is always a liar."

The treatment of this habit is exceedingly difficult, and it may be said that it is almost impossible to cure the opium habit if the moral support of the patient cannot be obtained. All cures advertised, or attempts by the legitimate practitioner to cure opium habits, fail in every case in which the patient's consent has not been fully obtained. The treatment that some physicians advise—namely, the gradual withdrawal of the drug and giving in its place another stimulant such as strychnine—may prove of some success, but only temporarily, because no sooner does the patient leave your hands than he will gradually turn to his old habit, even if there is not the actual craving for the drug. But, if the patient's support is assured, the treatment is usually simple and success always follows it.

It is of the greatest importance that the patient shall be removed from all baneful influences and placed entirely in care of his physician, preferably in a sanitarium or hospital, or, if this is not feasible, in care of a conscientious and firm nurse. Sudden withdrawal of the drug is contraindicated, it being preferable to simply reduce the daily allowance without the actual knowledge of the patient as to the amount taken. The quantities which an opium habitue can use are astonishing, and it is advisable, even with the moral support of the patient, to still keep him in the belief that these large quantities are administered. Where the patient has become addicted to the use of the hypodermic syringe filled with morphine, hypodermic injections should be continued, decreasing the actual amount of each injection, and substituting for it some stimulant, as, for example, the nitrate of strychnine. Hygiene becomes of great importance; the surroundings should be made as pleasant as possible, and the patient given all opportunities to distract his mind.

In the treatment of acute opium-poisoning promptness is necessary. Evacuation of the stomach by the administration of emetics, such as sulphate of zinc, mustard water, or hypodermic injections of apomorphine, should be furthered. The use of the stomach-pump will prove of benefit. Stimulants, both respiratory and circulatory, must be given, and such drugs as strychnine, aromatic spirits of ammonia, and nitroglycerin may prove successful. Alcohol, while of great benefit, should be used

with utmost caution. Small doses will show no effect; large doses may increase the stupor. The patient must not be permitted to sleep. He should be walked about continually, and slapped or rubbed with towels rung out of ice-water; if necessary, galvanization should be applied, or massage. The physiological antidotes for morphine or opium are atropine and belladonna.

Various colics, such as renal, hepatic or uterine, are relieved by the hypodermic injection of morphine, and the pain associated with angina pectoris is quite frequently diminished by this drug. Morphine or opium added to cough mixtures will have a great tendency to allay irritation usually associated with cough, and its action in diminishing secretions will tend to relieve the cough in the third stage of bronchitis. Delirium, associated with acute infectious fevers, is always quieted by the administration of opium, especially if combined with tartar emetic. Neuralgias of various kinds are quite frequently improved by local applications or hypodermic injections containing this drug; in fact, in all conditions associated with excessive pain, opium or morphine proves of service. In diabetes mellitus, opium proves of the greatest benefit, diminishing the quantity of urine excreted, the amount of sugar, in fact ameliorating all symptoms associated with this disease, and in this disease, as well as in different forms of cancer, opium can be taken in quite large doses. Diarrhoea and dysentery, especially if attended with cramps, are alleviated by the administration of opium internally or in the form of a suppository.

Apomorphine is not an alkaloid of opium, but a derivative of morphine. It is classified as an emetic, and is obtained by adding twenty parts of hydrochloric acid to one part of morphine and exposing it to a high temperature. It occurs in colorless crystals soluble in water and alcohol, but insoluble in other menstruums. As an emetic it can be used in doses of one-tenth to one-sixth of a grain and, if given in small amounts, proves of benefit as an expectorant, especially in the treatment of bronchitis with little or no secretion, in which cases it will quickly overcome this symptom. As an emetic it is most usually administered hypodermically, as it seems to have absolutely no emetic properties if taken by the mouth, and William Murrell found that as high as two grain doses could be safely taken internally without even exciting nausea.

The moderate use of opium in cases of heart disease is sometimes of the greatest advantage; it will relieve pain and often gives the most important aid in re-establishing the regularity of the cardiac action.

It may be useful if I now say a word about cases in which you should not give opium. Thirty years ago opium was a great deal given in cases of acute insanity. In the violent excitement of acute mania, which is a very terrible thing to see, a physician is often asked by the friends to give some anodyne, if perchance the patient is so situated as to have to remain in a private house for a time. Opium and morphine should seldom be given in such cases. The majority of the superintendents of insane asylums are opposed to the use of opium in insanity unless it be in small doses and for some special purpose. Most of them used it a great deal many years ago, but they have now come to a general agreement that its administration is disadvantageous.

Opium is, I think, as safe as any drug if properly used, and the key-note to success is this: When one is called upon to give opium to a patient for the first time, the initial dose should always be a small one, for afterwards it is easy to give more if the conditions seem to make it desirable. I disapprove of the common use of the hypodermic method of administering opium. By waiting a little longer, just as good effects can be had under ordinary circumstances if the drug is given by the mouth, although of course the dose has to be somewhat larger to get an equal effect. Opium given hypodermically sometimes produces curious and unforeseen disastrous effects. What seem small doses are occasionally sufficient to kill. If the hypodermic method be employed, one half the amount that should be given by the mouth is usually sufficient. Do not misunderstand me and suppose that I mean to belittle the value of the hypodermic administration of opium. Under certain circumstances you can get the desired effect only by giving the drug hypodermically. In eclamptic convulsions, for instance, I often give hypodermically ¼ of a grain of morphine with a one-hundred-and-fiftieth of a grain of atropine, every three hours until convulsions cease, and consider it a most valuable remedy for the condition, and I do not think the same effect can be produced under the circumstances by

giving the drugs by the mouth. In dealing with patients in a state of stupor, or if the nervous system has been injured so that it is doubtful if the natural power of absorption of the digestive tract can be depended upon, it is often best to use the hypodermic method of administration if it becomes necessary to give opium.

I would like to call your attention to the report of the Committee on the Narcotic Drug Situation in the United States, at the convention of the A. M. A., which met in New Orleans, April 27-30, 1920. Their principal recommendations were as follows:

"1. That the ambulatory treatment of drug addiction, as far as relates to prescribing and dispensing of narcotic drugs to addicts for self-administration at their convenience, be emphatically condemned.

"2. That heroin be eliminated from medical preparations, and that it should not be administered, prescribed or dispensed; and that the importation, manufacture and sale of heroin should be prohibited in the United States.

"3. In view of the statement in a government report that about 90% of the amount of narcotic drugs entered for consumption are used for other than medical purposes, the Treasury Department is respectfully urged to continue to study and report on the narcotic situation, including the government control of the drugs."

If this statement of the government report is true, and they ought to know what they are talking about, the Harrison Narcotic Law is not stamping out this habit as we all hoped it would. The fault now does not seem to lie with the doctors, who are living up to the law, but apparently seems to be the fault of our importation and export laws. If a doctor prescribes a small dose of narcotic drug to a patient, the same has to be made a record; a jobber in England might ship several thousand pounds of the drug into this country as merchandise and the government knows nothing about the transaction. From 1910 to 1915, there was an average yearly consumption of opium in the United States of 491,043 pounds. This has been greatly increased in recent years and the illegitimate traffic has greatly increased. It behooves the doctor, though, to uphold the law, and to see that he makes no more dope fiends than he can help: do not let any man say you started him taking the drug, unless you know he has an incurable condition, and then only with consultation should you start him on the drug.

3208 East Broad Street.

NEURASTHENIA.*

By W. C. ASHWORTH, M. D., Greensboro, N. C.
Medical Director, Glenwood Park Sanitarium.

Neurasthenia is a sort of blanket term to cover our ignorance of some functional nervous disorder which we find difficult to diagnose without careful and painstaking examination.

It is well known that the general practitioner has neither the time nor the disposition to make more than a superficial or desultory examination of his nervous patients. It is our usual custom to follow the line of least resistance and dismiss them as quickly as possible for cases that are more interesting, and certainly more easily diagnosed. The average neurasthenic is so pessimistic and self introspective that it is difficult from an ordinary examination to obtain a true conception of his ailment. It is for this reason that often palpable errors are made in the diagnosis of obscure nervous diseases. The utter failure of the patient to visualize or maintain a hopeful expectancy is so deeply seated in his nervous organism that more than mental suggestion is required to help him out of the "slough of despond." Neurasthenia is usually defined as a condition of nerve exhaustion or nervous debility.

The subject of neurasthenia is of so much importance that no attempt can be made to present it adequately before this Society in the short length of time allotted me for the reading of this paper. A brief statement, however, of some general principles involved in mental and neural pathology may help to explain the nature of the group of nervous symptoms known as "Neurasthenia."

In the progress of the medical sciences, the provision in the schools and hospitals for the study and treatment of neurasthenia is only beginning to receive proper attention in this country. The methods taught have been essentially objective, while the subjective, which are vitally important in psychopathological or psychoneurotic cases, have received but comparatively recent and limited recognition. In his clinical work, the student is taught the re-

*Read at the meeting of the North Carolina Medical Society, at Pinehurst, April 26-29, 1921.

finements of the diagnosis of physical diseases. Such objective methods cannot in their very nature be employed in neurotic disorders of a functional character, hence the physician, with all his long years of training in our medical schools, feels helpless in all cases of neurotic disorders, both in theory and practice. He is forced to fall back on drugs and other mechanical treatment without even so much as diagnosing his case.

The symptom-complex is grouped as a rule around a pathological nucleus which controls and guides the morbid manifestations. In a well developed case of neurasthenia, the dizziness, faintness, nausea, acid stomach, etc., the headaches, the anesthesia, hyperesthesia, the fatigue, insomnia, and general depression, bear severally a definite relation to some pathological focus, which the psychopathologist must find by a searching examination before an effective treatment can be undertaken.

The pathological forces, of which I speak, may more properly be expressed as a residual organic habit in the neurone or nerve cells. From this focus there develops the complex. The patient may have days or weeks or months of apparently normal health when there breaks upon the consciousness a feeling of depression, of nervousness, or restlessness, and probably an inner sense of excitement. With these symptoms the patient's appetite is gone, an actual disgust for food may develop, accompanied by constipation or possibly diarrhea. A very important characteristic is the periodicity and remission in the appearance of the symptoms. In order to diagnose these cases correctly, it is necessary for the physician to see the patient as a whole and not alone his physically disturbed functions.

The causes responsible for the disease are about as varied as the premonitory symptoms. In some cases the disease results from some severe infectious disease, which is especially true in tuberculosis, and in other cases we find some general organic condition, such as diabetes, nephritis, constipation and resulting auto-intoxication, and pelvic disease in women, etc. It may follow severe traumatism, overwork, and mental or emotional strain.

We must reckon, however, with another causative factor, deeper lying and more hidden. which allows the exciting cause to become pathogenic. This deeply rooted hidden factor cannot be looked for elsewhere than in a special predisposition on the part of the nervous system.

Of the symptomatology of neurasthenia I will mention constant fatigue, disinclination for effort, either physical or mental, loss of will power and the power of concentration, nervous irritability, hyper-activity of reflexes, insomnia, headache, vertigo, tinnitus aurium, heart palpitation, etc. In some cases we observe marked mental depression, alternating with periods of abnormal excitability or exhilaration without apparent cause. Chronic fatigue is the one pathognomonic symptom of neurasthenia. All neurasthenics complain of fatigue and indescribable lassitude, which is present as soon as the patient wakes in the morning and remains throughout the day.

Neurasthenia due to prolonged physical strain has been comparatively rare until within the last few decades, or since life of the average individual has become so strenuous. It requires an exceptional nervous system to escape or pass unscathed when it is necessary for the individual to meet a succession of exigencies, whether of business or social life.

While it is true that strong and normal men sometimes break down under the nerve-racking conditions of modern life, it is only natural to suppose that those of neurasthenic tendencies or antecedents would give way sooner under the pressure of existing conditions. It seems to be the almost universal opinion of medical men that some history of a neurasthenic's constitution or inheritance is to be found in a large per cent. of cases. It is authoritatively stated that only about one-third of the cases of neurasthenics or hysteria develops in the potenially sound individual. It is obvious that a disease would more readily develop in individuals with neuropathic inheritance, and those who are abnormally emotional, or who have previously suffered from a nervous breakdown, or concussion of the brain as a result of injury to the head.

Our recent world war developed many neurasthenics. It may seem rather paradoxical that a large per cent. of the men who developed neurasthenia during our late war were men remarkable for their bravery, daring and initiative, with undaunted courage and valor. It is also worthy of note, and of medical interest, that well seasoned soldiers often manifested the same symptoms of neurasthenia as the young or new recruits. The above fact can

only be explained by taking into consideration that the victim of neurasthenia was temperamentally and neuro-potentially unfit for the strenuous work which they volunteered to perform. It is well-nigh impossible for the physician in civil life to differentiate between who is and who is not a potential neurasthenic. If the medical fraternity had possessed this knowledge at the outbreak of our world-wide conflict, we could have prevented much wastage of the personnel in the fighting lines, the lowering of the morale of the men in active service, and the denuding of the country of men, useless in the field yet capable of valuable work at home. It is not reasonable to suppose that the potential neurasthenic would endure cheerfully the privations and hardships of army life, nor could we expect the neurasthenic to be fired with the spirit required to be a good soldier.

The successful treatment of neurasthenia is about as difficult as the diagnosis. We should make a careful and painstaking examination for any physical or organic condition causing or complicating the neurasthenia and, if such conditions are found, they should be given proper treatment, whether medicinal or surgical. If organic causes of the disease be eliminated, the treatment of neurasthenia should embrace rest and isolation, massage, electricity, hydrotherapy, forced feeding, and the use of appropriate drugs.

The personality of the nurse in charge of neurasthenic cases is of vast importance. A nurse should be selected who is tactful, resourceful, and one who can preserve an equable, cheerful demeanor, and can divert the patient from his gloomy forebodings, and morbid self introspection.

The physician should impress his patient with confidence and, if possible, make him believe that he fully understands his symptoms, and that he is going to get well regardless of any relapses that may develop during the course of his disease. If relapses arise, the physician should be tactful enough to forecast them and be firm in his opinion that the final prognosis is unchanged.

It is absolutely necessary for the patient to be relieved of all business cares and worries, and live a perfectly hygienic life in every respect.

In reference to diet, the food should consist of an abundance of milk, cream, eggs, farinaceous food, fruit and vegetables, until the patient is sufficiently strong to leave his room, when the ordinary well balanced diet may be resumed.

It is imperative that the patient refrain from the use of alcoholic stimulants of every description.

The length of time which he should require for rest in bed and isolation is often difficult to decide. It has been my observation, however, that only a complete physiological bankrupt should remain in bed for any protracted length of time. With the majority of cases I have observed that three hours daily, exclusive of the night, is usually sufficient for the average neurasthenic case.

Fundamental re-education of the patient with rehabilitation of his bankrupted nervous system is the essential part of the treatment. It is important to teach the neurasthenic what is meant by neurasthenia, and teach him to contrast his present state of mind with the normal, and to show him that he can attain normality. I cannot emphasize too strongly the importance of re-educational psychotherapy combined with rational physical treatment, based on the particular need of each patient. This part of the treatment, if carefully followed according to a definite schedule, will play an important role in the final outcome of the case. I have further observed that occupation, both manual and intellectual, is important in the re-education regime.

The factor primarily important in the treatment is to regulate, not so much what the patient shall eat or drink, but what he thinks. The whole man must be treated. His whole personality must be closely observed and, when the cause of the nervous disorder has been removed, the physical disturbances will of themselves disappear.

Want of time forbids me even to mention the many and varied forms of stomach and intestinal disorders directly due to nervous and emotional disturbances.

AN APPLIANCE FOR HOLDING INSTRUMENTS GROUPED WHILE OPERATING.*

By J. W. HENSON, M. D., F. A. C. S., Richmond, Va.
Associate Professor of Surgery, Medical College of Virginia.

To those operators who are fortunate enough to have a large and excellently trained operat-

*Read before the Southern Surgical Association at its meeting at Hot Springs, Va., December 14-16, 1920.

ing room staff, the device about to be described will not appeal. Such surgeons have only to make signals and have the instrument or whatever they may desire presented to hand at once.

In hospitals where there are a number of surgeons on the staff and the rotation makes the continuous service of each short, or where the individuals composing the operating staff have short terms in the operating room, there is little opportunity for developing a perfectly trained group. Suppose a hysterectomy were being done under such conditions: a table of instruments is in its proper place, a tray of instruments is extended across the patient's legs convenient to the operator's hand and the instruments are correctly grouped. In spite of this apparent preparedness, several times during an operation the surgeon's eyes and hand will be found roving over the instruments, occasionally with the verbal accompaniment, "Where is my tissue forceps?" or "Where is my needle holder?" etc., which means not only loss of time but embarrassment to the operator.

The writer, having had such experiences, became desperate and determined to find some means to prevent the straying of the essential or the frequently needed instruments.

With a piece of soft wire and a pair of pliers with pointed jaws, a model was worked out and turned over to a mechanic. The device is made of iron or steel wire and nickel plated. It is made in sections and so constructed that when two sections fastened together are placed on a plane surface with a wet gauze towel over them, there will be two parallel elevations each about 6¾ inches in length, with a depression between them 3¼ inches wide and 1¾ inches deep, which will serve as a nest or pocket for a group of instruments. If several sections are united, there will be formed a rack which will provide several pockets for groups of instruments.

The sections are made in two types (see A and B, Fig. 1). For the purpose of description, suppose they are resting on a horizontal surface. The two types have the following features in common: a 6¾ inch horizontal bar continuous at each end with a vertical 1¾ inch stem, which is in turn continuous at a right angle with a 2¾ inch foot piece, the latter ending in a loop flattened from above downward. The two foot pieces are parallel and a vertical plane through each would make a right angle with the horizontal bar.

The difference between the two types of sections is that in type A each vertical stem at its lower end makes a backward loop before finally continuing into the foot piece. These loops are flattened from side to side and are for union with the loops on the ends of the foot pieces of another section. Section B

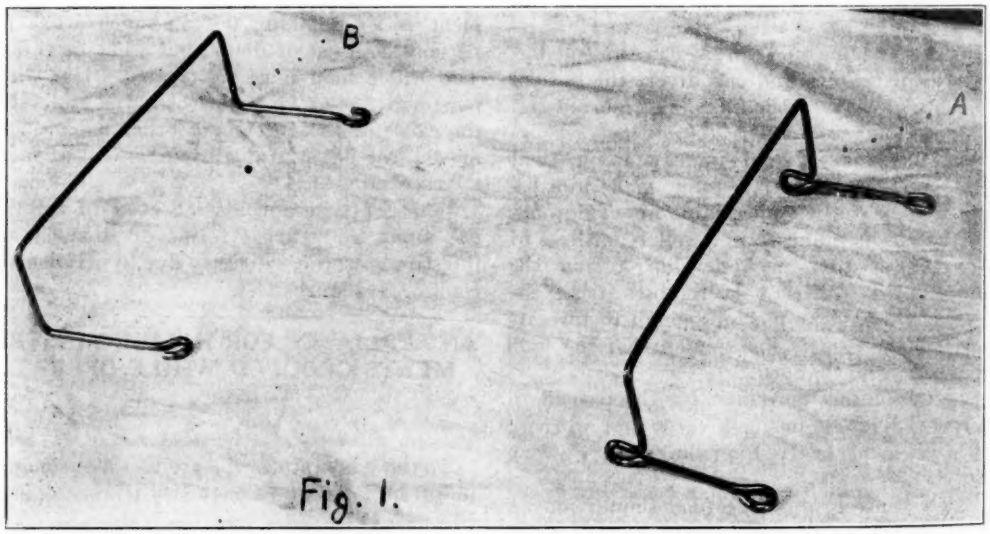


Fig. 1.

being a terminal one has no loop on its vertical stems.

The writer uses two racks, one made of two sections and the other of three sections. The three section rack is placed to the right of the operator. The two section rack is placed to the right of the assistant. In operations through a median or near median abdominal incision, the racks are placed with the free foot pieces toward the patient's feet and these are attached to the operating sheet by towel clamps through the loops (Fig 3). The reasons for this particular relation between the racks and the patient's body are that in the Trendelenburg position the weight of the instruments might cause the racks to fold up, if the attached ends were toward the patient's head and, furthermore, in this position, the free or terminal foot pieces of each rack with the corresponding bar make an additional pocket, as can be seen in Figs. 3 and 4.

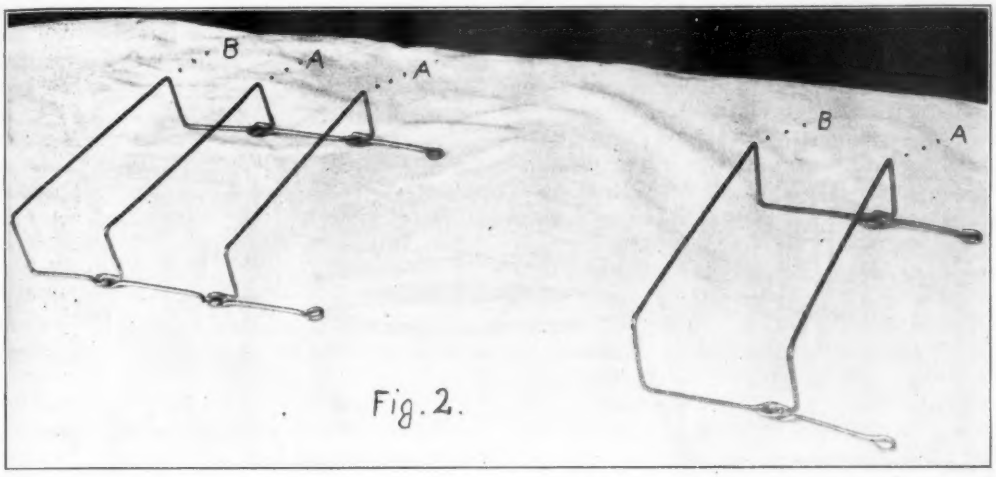
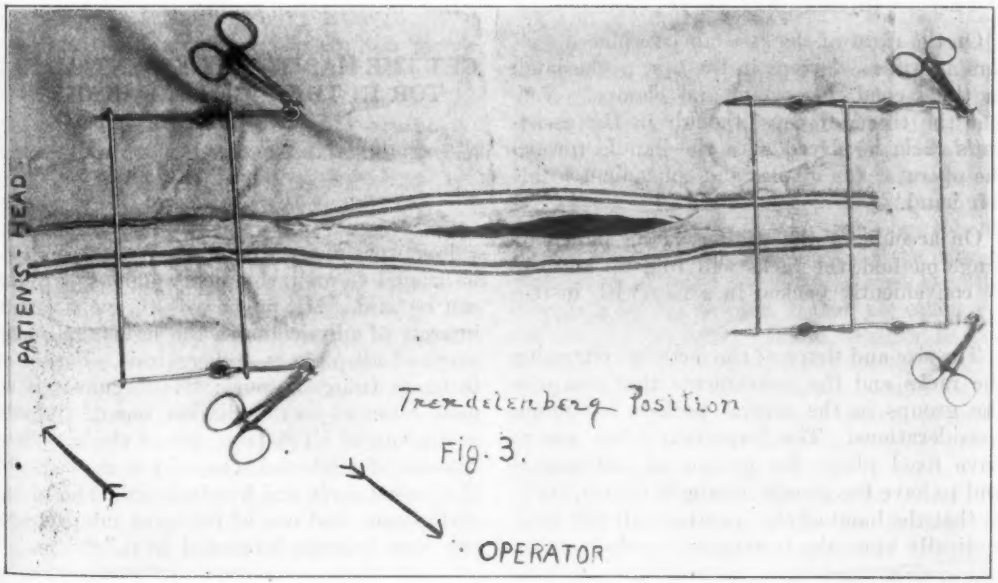


Fig. 2.

The racks are intended to provide for the



Trendelenberg Position

Fig. 3.

instruments that are most frequently in demand during an operation. The others are placed on the usual tray and with the tray in its usual position. The writer places scissors and needle holder in the first pocket to his right; in the next, hemostats and clamps; and in the third, knives, strands of catgut for ties and needles threaded with the requisite sutures.

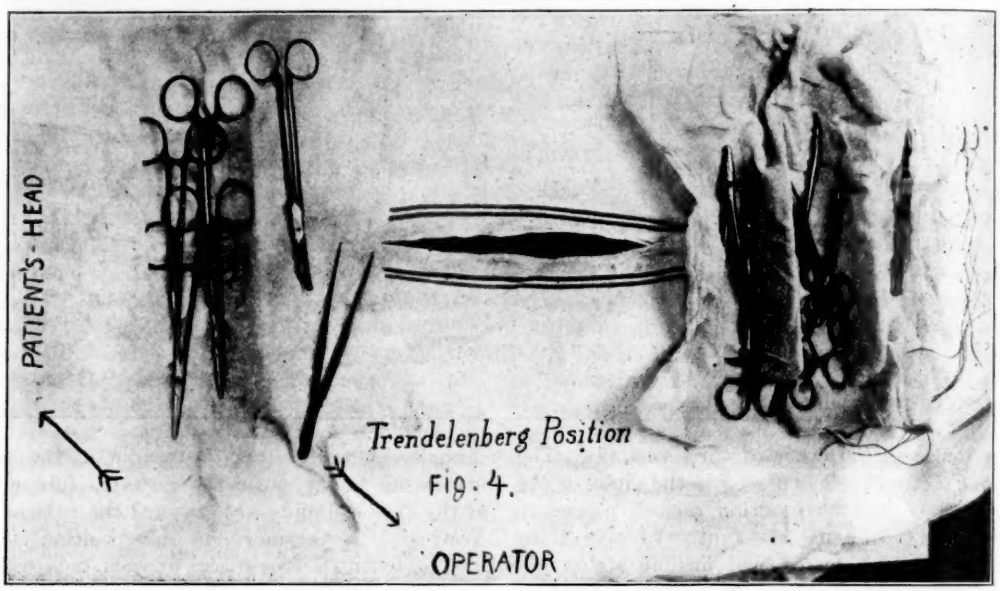
On the right of the assistant are placed scissors and tissue forceps in the first pocket and, in the second, hemostats and clamps. Note that the tissue forceps, though in the assistant's rack, is placed with the handle toward the operator for his use and convenient to his left hand.

On account of the sections being joined by hinge method, the racks will fold up and can be conveniently packed in a bag with instruments.

The size and shape of the sections composing the racks and the instruments that comprise the groups in the several pockets are minor considerations. The important ideas are to have fixed places for groups of instruments and to have the groups arranged conveniently, so that the hand of the opeartor will fall automatically upon the instrument needed.

To these two ideas the writer is wedded. As far as this particular appliance is concerned, it serves the purpose for which it was devised but it can easily be altered by any surgeon to conform to his views and probably some clever surgeon will work out something the writer may adopt with pleasure.

103 Professional Building.



GET THE HABIT—THE ESSENTIAL FACTOR IN THE FIGHT AGAINST TUBERCULOSIS.

By STEPHEN HARNSBERGER, M. D., Warrenton, Va.

Non est vivere, sed valere vita.

FOREWORD FROM MISSOURI. What I shall say is briefed to an incomplete summary of what can be said. My purpose is to evoke greater interest of physicians in the fight against the worst of all plagues—tuberculosis. Permit me to quote from Missouri: "Tuberculosis is the most common serious disease, one of the most contagious of all diseases, one of the most fatal diseases if neglected, one of the most curable if detected early and handled with interest and enthusiasm, and one of the most interesting if one once becomes interested in it."

Co-operate Effort Accomplishes. Many physicians are too busy, some are too impatient, others are too lazy, and all of us are too careless, to give thought and time outside of our customary routine. But our duty to our clientele does not end our service. We must look beyond; not just correct the fault which holds us a patient, but see what we have not seen and strive to abate influences and conditions which may act as potential predisposing and inciting causes of disease. Though physicians work individually, this is no reason why they should not co-operate collectively and actively, if not enthusiastically. Organized effort invariably accomplishes.

How may we best operate against tuberculosis? With your indulgence, I will suggest what I consider a feasible method of procedure:

Knowledge Liberates to Action. Get the habit of keeping in mind that knowledge awakens conceptions which evolve and exalt human energies. The people do not know. Conventional ignorance blinds them to even the elemental demands of life. The people must be made to see and think before they give manifest heed to changes best for individual and community. The solution is in the dissemination of plain health facts through educational enlightenment.

Newspapers Dominant Factor. Get the habit of emphasizing the value of the press, which is ever active in giving time and space to all matters calculated to help the people. Newspapers strive to keep readers abreast of the current of daily news, business progress and public health reforms. They are among the people's best friends. Advise families to take, pay for, and read, at least one live newspaper.

Railroads Stimulate Thrift and Aspiration. Get the habit of admonishing people not to hold ill-feeling toward railroads. No community without a railroad can develop into anything like a highly prosperous and enlightened section. *It is noteworthy that prosperity and knowledge are virile antagonists of tuberculosis.* Therefore, have the people keep in friendly touch with railroads. What is best for one is best for the other. Repressive agitation and legislation has crippled railroad expansion.

Good Roads Animate Progress. Get the habit of reminding women, especially in rural sections, that bad roads spell oppression—good roads liberty for women and children. Fix in mind that bad environment and ignorance are the chief factors that give life and sweep to the agents and agencies which create and spread tuberculosis. Good roads swell business opportunity, enforce equity of wage-scale, make for more comfortable homes, promote social intercourse, minimize illiteracy, elevate moral tone, improve environment, cut down disease and contribute increased happiness. *Railroads and good roads must have recognition as valuable units in the campaign against tuberculosis.*

"Unreasonable Habits" Mark of Weakness. Reforms go slow and this snail pace is due, in most part, to the unthinking, unthrifty, improvident classes of men who smoke and chew and drink; who spend on useless and evil habits what should go to their families; who force their families to a life of poverty and ignorance; and diverted from such waste to road building, the country would soon become a network of good roads. With good highways we would not have poverty and tuberculosis at every cross-road, and illiteracy would be rated as a blunder of the past.

Knowledge Plus Skill Essential. Get the habit of telling the people that the conquest of tuberculosis depends to a large extent on better care of the mother before and during pregnancy and of both mother and child during and after birth. A healthy mother, other things being equal, will bring forth a healthy child. In atypical cases, however, the safety of both mother and child rests altogether upon the knowledge, experience, skill and care of the person in charge. Therefore, it is always best for parturient women to be attended by properly qualified physicians. Midwives should never be employed. Many surgeons openly charge that they are kept busy by the careless and ignorant attention given women at childbirth. For this reason, if for no other, obstetrics and pediatrics should be made to take first rank in medical schools (not the tail-end as heretofore), and graduates should be required to have at least two years' practical bedside experience in these two branches before they are eligible to practice.

Intelligent Trial Demanded. Get the habit of teaching people that health measures can only do good to the degree and time they give them definite use. "Habit," Webster ex-

plains, "is an internal principle which leads us to do easily, naturally, and with growing certainty what we do often." Hence, pre-eminently, habit of doing becomes a conviction and, being a conviction, goads to exertion. Misfortune is not a crime, nor is imprudence the greatest guilt; *but the people should know that physical, mental, moral and spiritual deterioration follows their own lack of forethought.* Keep this reminder before them.

Research Prophylactic. Get the habit of looking for tuberculosis and the conditions which lead up to the disease. This constant alertness will better edge diagnostic acumen and will lead repeatedly to a correct diagnosis, even without the confirmatory evidence of plain objective symptoms and signs. The judgment trained by close observation learns to correctly interpret the collective clinical findings and a correct diagnosis is frequently made in advance of the disease itself. Or, to put it clearer: Use "common sense vivified and heated by conscience"—the complemental essential in the hunt for tuberculosis. In no other disease is this so true as in tuberculosis. *The early diagnosis*, which statistics show is now seldom made, *is the peremptory prerequisite step in its cure, control and prevention.* Of all defaults of duty, the late diagnosis defines the greatest wrong.

Value and Economy of Intervening Measures. Get the habit of instructing the masses, and particularly legislators, that the prevention and cure of tuberculosis involves sociologic and economic problems, to meet which, existing State laws must be so worded as to give health departments power, through discretionary authority and adequate financial aid, to take supervisory charge over all suspects, environments and cases which may make the activity and spread of the disease a menace to others. While it cannot be too strongly emphasized that laws designed to control and restrict tuberculosis are primarily public health measures, and that the economic problems that may be involved should be considered as being of but secondary importance, it remains an indisputable fact, a fact not hitherto given prominent thought, that spending money to safeguard the people against tuberculosis is an actual saving of money. For the measures instituted to curb tuberculosis—legal and equitable care—the improvement of environment by hygienic and sanitary measures at one and the same time effectually works to prevent all other preventable diseases. They are economic measures because comprehensive in application and results. This ultimate truth bars rational contradiction. Legislators, I take pleasure in saying, are awakening to a greater degree of appreciation of the fact that adequate provision must be made to protect the well from tuberculosis and to reinstate its victims to a life of usefulness.

Police Control Requisite. Get the habit of keeping before the minds of the people that modern medical thought turned the pest-ridden jungle of Panama into a model habitable area. It seems axiomatic that what has been done there can be done elsewhere. It gives the hope and furnishes the basis of the belief that cleanliness and sanitation is all that is necessary to wipe preventable diseases from the face of the earth. But this is by no means true. We are told that adequate living wages and sanitary measures did it there and will do it anywhere. This also is not true. Neither the one nor the other nor both together did it. What, then, you ask, did do it? The well applied coercive police supervision did it—the penalty of loss of work and wages. That and that alone did it there, and without this magic stabilizing force it cannot be done elsewhere—to the same degree of perfectness and permanence. Keep this before the people in general, and legislators in particular. It will show them that counties, municipalities and States must have health boards holding positive governing powers, and that those health boards must have full-time health officers and visiting agents to inspect, direct and enforce the things that are best for the people's and States' welfare. With this obvious truth engraved on their minds, they will know that it is for them to open the door that bars the way to safety.

Hitting the Mark. Last Word From the Heart. Get the habit of realizing that we have been shooting too much at random. It is time we were nearing the mark. Experience, reason, safety, expediency, mutually combine to urge this evident course: *Spy out the incipient case—isolate it—cure it—the only way to stop it.*

"Oft, when in my heart was heard thy timely mandate, I deferred the task."—Wadsworth.

Defer no longer—let affirmative action seal that inward conviction of duty. Now—today—the "timely mandate" warns—for tomorrow awakes tuberculosis—opportunity gone—death.

MECKEL'S DIVERTICULUM: REPORT OF SIX CASES.*

By CARRINGTON WILLIAMS, B. A., M. D., Richmond, Va.

The following cases having a Meckel's diverticulum have been observed:

Case 1. C. H., male, age 28, was admitted to St. Luke's Hospital, New York City, on April 20, 1915, complaining of right inguinal hernia. His history was entirely negative except for the presence of the hernia of six years' duration. Physical examination was negative except for the right inguinal hernia of the indirect variety extending into the scrotum. The sac was readily separated and its contents found to be irreducible; it was therefore opened. Small intestine was adherent to the bottom of the sac, the bowel was delivered by separating these adhesions and found to be the blind end of a diverticulum, traction on which brought down a loop of ileum. This diverticulum arose from the gut on the side opposite the mesentery; it measured four inches in length and its diameter was that of the small intestine. The diverticulum was amputated and the hernia repaired. The patient's recovery was uneventful.

Case 2. M. S., age 29, male, was admitted to St. Luke's Hospital, New York City, on May 5, 1915, complaining of chronic indigestion. This patient was an Italian and his history difficult to obtain. For four years he had had colicky pain in the region of his umbilicus, anorexia, flatulence and constipation. He had not had an attack suggestive of acute abdominal disease. His appendix had been removed through a McBurney incision six months before admission but he was not improved by the operation. The abdomen was opened by Dr. Mathews through a high right rectus incision. There were no adhesions and all the viscera were normal except a diverticulum arising from the ileum located 18 inches from the ileocecal valve. The diverticulum was about the size of the last joint of the thumb measuring one inch by one-half inch. This was removed. The patient made an uneventful recovery, was relieved of his symptoms, and gained weight during his convalescence in the hospital.

Case 3. W. C. S., male, age 9, was admitted to St. Luke's Hospital, Richmond, Va., February 13, 1917, complaining of severe abdominal pain. He had had frequent attacks of mild abdominal pain attributed to food. The present attack began four days before admission with severe colicky pain over the entire abdomen, nausea, vomiting and constipation. His physician gave him several enemas resulting finally in a good bowel movement. Enemas given during the past two days, however, have been without result. His severe pain became localized in the left lower abdomen but there was some pain in the epigastrium. The abdomen was distended and rigid, the right rectus muscle was particularly rigid. Leucocyte count was 21,500, polymorphonuclears 73%, lymphocytes 27%. The abdomen was opened by Dr. McGuire through a right rectus incision. A diverticulum was found about four inches long, gangrenous at its tip. It arose from the small intestine and was adherent to the mesentery forming a complete obstruction to the bowel. The diverticulum was removed and the obstruction thereby relieved. The patient was in such poor condition that the abdomen was closed without further exploration. He made a good recovery.

Case 4. M. Z., female, age 43, was admitted to St. Luke's Hospital, Richmond, Va., January 11, 1920, complaining of indigestion and abdominal pain. She had an attack five years before in which she had cramp-like abdominal pain, fever, nausea and vomiting lasting five days and diagnosed appendicitis. She has had recurrences of similar but milder attacks which have become more frequent during the past few months. During the period in which she has had these attacks she has had no appetite and has suffered with flatulence. Her bowels have always moved regularly. She has not lost weight. The abdomen was opened by Dr. McGuire in the mid line and an adherent appendix removed. A diverticulum was found coming off the lower ileum and showed evidence of having been inflamed. It was removed. The patient made an uneventful recovery and, when seen six months later, her symptoms had been relieved.

Case 5. T. W., female, age 42, was admitted to St. Luke's Hospital, Richmond, Va., April 29, 1920, complaining of irritation of the bladder. This patient had a chronic pelvic infection and in the course of the operation a small diverticulum was discovered arising from the lower ileum and removed. There were no symptoms which could be referred to it.

Case 6. W. R., male, age 9, was admitted to St. Luke's Hospital, Richmond, Va., on Jan-

*Read before the Tri-State Medical Association of the Carolinas and Virginia, at Spartanburg S. C., February 16, 1921.

uary 23, 1921, complaining of abdominal cramps and locked bowel. He was a healthy strong boy who had never had any serious illness. His mother recalled frequent attacks of abdominal cramps of short duration attributed to over-eating. Three days before admission he had a sharp cramp extending over the entire abdomen. The next day the pain was more severe and he vomited several times. Numerous cathartics and enemas failed to move his bowels. When he arrived at the hospital he was seriously ill. The abdomen was slightly distended, very rigid over the lower half, and a rounded mass was felt in the left lower quadrant. This mass could also be felt above the brim of the pelvis by rectal examination. An enema was given with no result. The abdomen was opened by Dr. McGuire in the mid line and a diverticulum was found twisted on itself and involving in the twist a loop of ileum, all of which was gangrenous. The loop of bowel containing the diverticulum was resected and an end-to-end anastomosis done. The diverticulum was distended, measuring six inches in length and two inches in its greatest diameter. The patient died 24 hours later.

The standard text books on anatomy and the papers written on this subject give the incidence of Meckel's diverticulum as 2% of all individuals. Balfour[1] reported that it was discovered only 15 times in 10,600 abdominal operations at the Mayo Clinic or 0.14 per cent. That it is seen in so much smaller numbers on the operating table is easily explained, for few operators examine the small intestine and, unless the diverticulum is diseased, it is not casually discovered.

The diverticulum is the remains of the vitelline duct of the embryo and in post natal life is located on the terminal four feet of the ileum usually about 18 inches from the ileocecal valve. The wall of the diverticulum is the wall of the lower ileum and the mucosa and submucosa contain the usual glands and lymphoid tissue of this gut. Wellington[2] collected 326 cases reported up to 1913 and found that one-third are attached to the navel either as an open fistula or by a fibrous band. The length varies from ½ to 9 inches. Its blood supply is received through an extension of the mesentery along its border. In Wellington's collection of cases the following conditions in order of frequency were found: Intestinal obstruction, intussusception, acute diverticulitis, in hernial sacs, opening at the umbilicus, volvulus, perforation in typhoid, perforation from foreign bodies, and tumors. The inflammatory cases formed only 15 per cent of this number. This is due to its large caliber providing easy drainage of its contents and, being attached to mobile gut, it is less liable to stoppage and its resulting infection than its neighbor the appendix.

Fauntleroy[3] reported the case of a young seaman who was seized with sudden severe abdominal pain simulating acute appendicitis. Operation was done in less than 24 hours and an intussusception found with a Meckel's diverticulum at its head.

Pearce[4] reported a case of acute diverticulitis gangrenous and perforated when the operation was performed, 12 hours after the onset of symptoms.

Bennett[5] reported the case of a young girl with intestinal obstruction due to a Meckel's diverticulum adherent to the omentum, thus forming an arch through which four feet of ileum had twisted.

Harbin[6] reported two children having diverticula opening at the umbilicus. He also reported a woman in whom a diverticulum was discovered in the course of a pelvic operation. She had had vague digestive symptoms for years.

Frasier[7] reported a young man who had frequent mild colicky pains. At operation the appendix was normal but search revealed an inflamed and adherent Meckel's diverticulum.

Borden[8] reported a remarkable case in which the diverticulum had tied a knot around a loop of bowel and the whole mass was gangrenous.

These cases are quoted to illustrate the pathological possibilities. It is easy to imagine the obstructive potentialities of a finger of gut which may be adherent to the umbilicus, omentum or mesentery, or free to twist and tie itself around the neighboring loops of gut. Halstead[9] says that this diverticulum is responsible for 6 per cent of all intestinal obstruction.

The symptoms arising from such varied pathology are not constant enough to permit of accurate diagnosis. In the past histories of our Cases 2, 3, 4, and 6, frequent attacks of colicky pain were noted and in Case 2 the pain persisted after removal of the appendix. In general, the inflammatory cases simulate appendicitis. Case 3 was thought to have peritonitis on account of the distention, tenderness

and rigidity on the left side. The obstructed cases give the picture of a low obstruction where the distention is only moderate and the vomiting not profuse but, although the symptoms are not so alarming as a higher obstruction, the danger of gangrene of the gut is just as great. Wellington's[2] collection of 326 cases showed a mortality of 57 per cent of all cases.

That it can be a source of irritation to the stomach in the so-called surgical indigestion, the author is convinced. Harbin's[6] case and Cases 2 and 4 above are illustrations.

A positive diagnosis of the condition cannot be made until the abdomen is opened except in the rare cases where the diverticulum is open at the umbilicus. At operation, if the pathology is acute, it is easily discovered, but in any case a short search along the terminal four feet of ileum would find or exclude it. If found, even though it be not diseased, it should be taken out in the same manner that the appendix is routinely removed when the abdomen is opened.

COMMENT: The cases herewith reported may be summarized as follows: Cases 1 and 5 presented no symptoms referable to the diverticulum, which was removed in the course of operation for other trouble. Cases 2 and 4 had recurring attacks of pain which can be attributed to disease of the diverticulum and in addition digestive symptoms which were relieved by removal of the diverticulum. Cases 3 and 6 were acutely ill with obstruction of the bowel; both had had numerous previous attacks of abdominal cramps which can be explained by the presence of the diverticulum.

This series of cases illustrates several interesting conditions which may result from the diverticulum. The two cases which had acute disease were seriously ill and the above mentioned mortality of 57 per cent of all cases is most impressive. I am particularly interested in the two cases which were relieved of chronic indigestion by removal of the diverticulum and believe that every exploratory laparotomy should include an examination of the lower ileum for the diverticulum, particularly when other findings are not conclusive.

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400 *East Franklin Street.*

MUNICIPAL CONTROL OF TUBERCULOSIS.*

By C. L. HARRELL, M. D., Norfolk, Va.

In presenting this subject, it is not my intention to try to mention anything new, but to call attention to a few facts as they exist in our city and State, in an attempt to stimulate more interest among the profession in the fight to prevent the spread and development of tuberculosis. For the sake of convenience, I will classify the tuberculous into three groups: First, the early and moderately advanced cases above 10 years of age; in group two, the far advanced cases; in group three, all children under 10 years of age. It is with the latter group that the bulk of this paper will deal.

The early and moderately advanced cases that develop in the State are being taken care of fairly well at our three State Sanatoria. Catawba Sanatorium has a capacity of 300 beds; Blue Ridge Sanatorium, at Charlottesville, has a capacity of 100 beds; Piedmont Sanatorium, for colored patients, at Burkeville, has a capacity of about 100 beds. Patients are allowed to remain in these institutions from three to twelve months, according to the case, the average being about six months. When they are dismissed from the sanatorium, if the disease is not arrested, a majority of them are well on the road to recovery and know how to take care of themselves, and how to prevent infecting others. A small percentage develop into far advanced cases and have to continue treatment elsewhere. They are really institutions of learning. I consider them to be a great asset to our State, and to the future generations. Unfortunately, there are not more State Sanatoria. About 1,000 cases at the most get instructions and treatment at these institutions during a year. According to various estimates, there are from 23,000 to 40,000 cases of tuberculosis in the State, so you see what a vast number are going untreated. One great trouble with the situation is that we have been

*Read before the Norfolk County Medical Society, February 21, 1921.

grasping it in the middle and letting both ends go loose, by underestimating the danger of the far advanced cases, and letting the young children get by with very little attention.

Group two, the far advanced cases, the most dangerous of all, I regret to say, have no place to go for care and treatment. A majority of them are left to shift for themselves, they stand an outcast and a menace to society. No one wants to treat them, no one wants to care for them, not even their own people want them around. How many there are of these poor unfortunate individuals, it will be hard to estimate. The Bureau of Vital Statistics report 3,445 deaths from all forms of tuberculosis for 1919. Our City Health Department reported 154 deaths from tuberculosis in 1920. This I consider a very good report for a city of its size. However, this does not include the ones that died at the City Home, or the ones who died away from here and were brought back to be buried, but it means that there were 154 homes in our city last year that were hotbeds of infection, 154 individuals walking the streets, so long as they were able to walk, scattering infection on every hand. What are we to do with these cases? There is room at the City Home to take care of about 40 patients; with but a few exceptions they will not go there. It is against the rules for any other hospital to admit them. To say that a far advanced case of pulmonary tuberculosis left to do as he or she wills is a menace and dangerous to society is putting it very mild, especially when we know how susceptible children are to tuberculous infection. One author states that in a primitive race tuberculosis is just as contagious as measles. By primitive race he meant a people who had never had tuberculosis to establish an immunity. It has been proven by many that from 70 to 90 per cent. of all children will give a positive tuberculin test by the time they reach 18 years of age. We also know it is very fatal to children under 3 years of age. Dobbie states that a majority of all children under 3 years of age infected with tuberculosis die. Hempleman, in a study of 130 infants under 2 years of age with pulmonary tuberculosis, gives a mortality of 78 7/10 per cent. for the first year, 57 4/10 per cent. for the second year, or 68 per cent. under 2 years of age. Walstein and Spence, in analyzing 362 deaths in children from all forms of tuberculosis, found that 73 per cent. died under 2 years of age, and 86 per cent. under 3 years of age. Of this number 193, or 53 per cent., died of tuberculous meningitis. It is recognized that tuberculous meningitis is the most fatal form in infants. It is an established fact that all children are very susceptible to tuberculous infection, but more so under 3 years of age. Elliott says that a tuberculous mother should not care for or nurse her child. Dobbie says that a tuberculous mother must not be allowed to come in contact with her child for three years. He also states that if a father is tuberculous, he should not live in the house so long as there is in the house an infant under 3 years of age. I will go one further and say no person should be allowed to marry within three years of the time they had had active clinical tuberculosis—certainly no children should be permitted to be born within that time. It is almost impossible to say when one's lips and sputum are free of infection.

In view of the above statements, what are we to do with the chronic, far advanced cases? The State cannot and should not be held responsible for them. It is too big an undertaking. The cost would be tremendous. Facilities for treatment should be provided for them near at home. Each thickly populated community or municipality should have a well equipped tuberculous hospital where all far advanced cases, rich and poor, can be properly isolated and taken care of during their lingering illness. We are far behind the Northern and Western cities in this respect. Norfolk boasts of its fine churches and public schools. I would also like to hear it boast of an up-to-date tuberculous hospital. As a suggestion, I believe it would be feasible to move the cottages from the City Home to the site now owned by the city, adjoining the contagious hospital; this would serve as a nucleus for further expansion. It would certainly relieve the present situation until better facilities could be provided.

Under group three, I have included all physically sub-normal children under 10 years of age. This group may be further subdivided into, first, those having active clinical tuberculosis; second, children of tuberculous parents; and those that are anemic, undernourished and underweight. By the ones having active clinical tuberculosis I refer to those with cough, expectoration, temperature, pulse and chest signs. These children should have special

care. There is no place in the State where these cases can get treatment except at home. As every one knows, the majority of children that develop tuberculosis are from the poor families, where the food and accommodations for treatment are poor, and, to say the least, very unsatisfactory. I might add that Dr. Grandy has a place at Cape Henry (a preventatorium he calls it) where he handles about 15 cases three months during the summer. He does not take any active open cases.

In my opinion, the State should provide for these children. There should be a pavilion at each State Sanatoria for children of school age, under the supervision of competent nurses and teachers. There is no reason why a child taking the cure should not be given a few hours of schooling each day; it helps to keep them satisfied and contented, and the improvement of mind and body may go hand in hand. Connecticut, Massachusetts and Maryland, to my knowledge, have such an arrangement.

It was my good fortune last summer to visit the Gaylord Farm Sanatorium, near New Haven, Connecticut. The physician-in-charge is Dr. David R. Lyman, formerly of this State. This is a semi-State and private institution. He has a ward there with 25-bed capacity, in which he admits children from 6 to 13 years of age—no open cases. They were a happy, hearty-looking bunch. Some one asked how he knew these children had tuberculosis, as no one was admitted with a positive sputum. His reply was, "I do not know, and do not care. One thing I do know; some of these children came from homes where there was tuberculosis; all of them were anemic, undernourished, underweight and subject to colds. This is the class from which tuberculosis comes. Why wait until they develop the disease to treat them? Treat them now and prevent development."

What is being done in our city and State to help this class—the physically sub-normal child? A great majority of them are in school impairing their health, stinting their bodies in an effort to improve their minds, and as a result both are being sacrificed.

Last September I wrote to the superintendents of the public schools of each city in the State and asked the following questions: What was your enrollment last year? Did you have an open air room? What was the cost of maintaining this room above the average? I was merely trying to get a vague idea of what was being done throughout the State for the physically sub-normal child. As a result I found that there were only four cities in the entire State doing anything at all to help these children, and that very little. Lynchburg had one open air room which accommodated 20 children; Petersburg, one room accommodating 20 children; Danville, two open air rooms last year with 38 enrolled; Richmond had 15 open air rooms last year, eleven for white and four for colored. Since this session began, one nutrition clinic has been started in Norfolk at the request of a principal.

A great many more children of school age are in need of treatment and special care than one would think. Emerson, of Boston, who has done a great deal of work along the line of open air classes and nutrition clinics, states that extensive studies have shown conclusively that at least one-third of the children in this country of school age and pre-school age are sufficiently underweight for their height as to require treatment for malnutrition. He also says that children 7 per cent. or more underweight should be grouped in open air classes, school pressure removed, and the class method used in treatment as a part of the school program. He estimates that about 18 per cent. of our school children are 7 per cent. or more underweight.

There are several organizations at the present time trying to get a hold into the public school system, with the object the betterment of the physically sub-normal child. First, I will mention medical inspection. The limit of its scope at present is to recommend the removal or treatment of diseased tonsils, adenoids and teeth, and the exclusion of contagious diseases. Another organization is the Modern Health Crusaders, having as their object cleanliness, regulation of habits as to meals and sleeping hours, and wholesome food. Another band of workers are trying to start open air classes with lunches. The prime object of this group of workers was to take care of the children with suspected tuberculosis and the feeble-minded. It has broadened its scope, and now takes in all undernourished and physically sub-normal children. Then there are others who are advocating free lunches at school for the anemic and undernourished child. I might add that these anemic, undernourished chil-

dren are not always from the poor families, but often from the well-to-do.

All of these workers are doing a great deal of good, but I claim that all of them should be grouped under one great head and that should be medical inspection. Let the physician be the instigator and director, and not the Mothers' Home League, Modern Health Crusaders, or some similar organization. A room should be fitted up in each grammar school as an open air room, with a special trained teacher in charge, where all the physically sub-normal children could be classified. Those that need it should be served with 1,500 to 2,000 calories of food each school day. Have a physician in charge of this work who is interested and capable of doing it. By this means I believe that many of our children now out of school on account of bad health would be in school, and those that are backward in their work on account of a lack of proper nourishment and classification will be promoted on time.

I am sorry, but we are far behind other cities in this work; the Northern and Western cities have been carrying it on for years. What has proven to their advantage I have no doubt would prove to be ours also if given a fair trial.

As a means of prevention I am heartily in favor of a careful physical examination of each teacher, certainly once, if not twice, a year. One with active tuberculosis should not be allowed to stay in a closed room all day mingling with small children, leaning over them, and in many instances loving and kissing them, as teachers too often do. I will make one exception, but only one, a teacher who has been to a sanatorium and taken the cure. She knows how to protect herself from others, and is not ashamed to do so.

There is a requirement of our city school board at present that each teacher present a certificate of good health at the opening of school in September. I happen to know that this rule is not being properly observed. The medical inspectors should not be allowed to give these certificates at school where they have no facilities of making a careful examination. Not even the Department of Health has a right to issue a certificate of good health to a person who is to qualify for a year's work without a careful physical examination. You cannot look at a person and say that he or she has or has not active tuberculosis. If you apply for a position with a large insurance company, or United States Government, you are required to stand a very rigid examination. Our public school system is just as important, and we should be just as careful.

In conclusion, I wish to emphasize the importance and the great need of a tuberculous hospital in our city, for the isolation and treatment of far advanced cases of tuberculosis. It would be a fitting memorial to anyone who is interested in humanity to erect such an institution to his memory.

Second. The need at each of our State Sanatoria of a pavilion for children of school age for the treatment of active open cases.

Third. The importance of the open air classes and nutrition clinics being introduced into our public schools, for the development and treatment of anemic, undernourished and otherwise physically sub-normal children. I am in favor of this being a branch of medical inspection.

Fourth. A more careful examination of the teachers of the entire system.

My sole interest in the entire tuberculosis problem is to catch it early, stop it where it is, prevent infection, and to prevent development in case of infection.

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311 *Taylor Building.*

THE STATUS OF THE GENERAL PRACTITIONER: AS IT IS AND AS IT SHOULD BE.*

By J. A. OWEN, M. D., Turbeville, Va.

There was a time within the memory of most of us when the general practitioner, and by that I mean the family physician, occupied a position in the community that was well nigh ideal. He reigned supreme in things medical, his authority was unquestioned, he enjoyed the

*President's address before the meeting of the South Piedmont Medical Society in Lynchburg, Va., April 19, 1921.

confidence and respect of the whole community, he gave of his best efforts to his work for the good of his people, and they in turn rendered unswerving loyalty and support. These were the halcyon days of practice.

That a change has come about gradually, but nevertheless surely, from this happy state of society, no one of you will deny, and I think you will also agree with me that general practice, while more lucrative and less exhausting physically, is more exacting, more trying mentally and less satisfactory than it has been at any time within your memory. From this exalted position of being looked up to and in many cases almost revered by his people, the general practitioner has descended in the popular mind almost to the plane of a tradesman: people change doctors almost as readily as they do grocers and butchers and often upon just as slight provocation, and it is nothing unusual, in the cities, at any rate, for as many as three doctors to be physicians to the members of one family.

Now, what are the causes of this decline in the standing of this honored and noble profession? Dr. Frank Billings, writing on this subject recently, ascribes the following as the causes: First, the doctor himself, who in the rush and grind of every day practice cannot keep abreast of the advances in medical progress and the use of special instruments and refined technique, and, perforce, must drop out or do superficial work. Second, the masterful strides of surgery within the past two decades offer prompt and often spectacular cures which medicine cannot promise. Third, the medical schools, by emphasizing the specialties of the faculty, most of whom practice some particular branch, get the student's mind focussed on some one phase of medicine leading him away from general practice.

To my mind there are other causes, too, one of them is contract practice, whereby medicine is put on a rental basis like fuel and lights, and so is commercialized.

Then there is that most vicious factor fostered by newspaper advertising of patent medicines, where the symptoms of every ill are published and the victim becomes the self diagnostician and prescriber.

To this list one might also add the various cults of drugless healers who promise so much and often do nothing, while the honest physician must of necessity be most conservative in his prognosis in the very cases which these nostrum vendors and fakirs guarantee to restore to health.

In reply to a question as to the remedy for this almost deplorable condition, Dr. William J. Mayo writes the first step in readjustment is, "surgery should be put back where it belongs, a means of mechanical therapy in conjunction with medicine, and should not continue in competition with the internist as it has in the past."

The physician himself, individually and in the medical societies, can do much to remedy these evils. He should be well prepared by schooling and internship for his work, should have a general knowledge of most of the scientific methods of diagnosis and a thorough knowledge of those which he can use in his own laboratory. He should make careful, systematic, physical examinations and perfect a technique of his own, and he will be surprised at the information he will gain thereby. He should ally himself with some good man in the several specialties, to whom he may refer cases and with whom he may co-operate to the patient's good and the mutual benefit of each, thus retaining his hold upon his patients and gaining in prestige by the association.

As a society, we should present a solid front against commercialized practice in the form of national health insurance and contract practice; as a body we should demand legislation against vending of patent medicines by agents who take millions of dollars from the poor and ignorant; and we should insist that every person who accepts fees for services to the sick should have the same license and certificate to practice which we worked so hard to gain, and which we prize so highly.

When we have done these things, we will have placed the family physician in his rightful domain, where he will again become the ambassador extraordinary and minister plenipotentiary, representing the home in all things medical.

THE DEARTH OF RURAL PHYSICIANS.

By C. B. GREEAR, M. D., Honaker, VA.

For some time the reading public has, in various ways, had its attention called to the shortage of physicians in rural practice. There are numerous angles from which to view this unfortunate situation, which in themselves do not solve the problem, but may prove

a means of suggesting an index to the situation.

Having done service in the capacity of a rural physician for several years, I have made some first-hand observations which result in certain conclusions. In making the following statements, I am fully aware that the opinions and theories of even an expert nature are more than likely to be diametrically antagonistic to one another. In this shortage of rural physicians, the rule of "cause and effect" stands out prominently and must be reckoned with, if the problem is solved.

In the practice of medicine, we have all been made to believe that the etiologic factor entering into a pathologic condition of the human body should be isolated and thoroughly scrutinized before a treatment is given. If not, the treatment becomes empirical and does not occupy a very scientific position in the realm of medical practice. In a consideration of this rural shortage of physicians, similar factors must, of necessity, be given the consideration due them, if a suitable remedy is to be found for the difficulty. Behind the etiologic factors we mention there are unseen forces at work, doing their bit in the evolution of mankind.

Bad Roads make travel slow, unpleasant and sometimes impossible, whether it be in a car, buggy, or on the back of tried and always true "Dobbin." Referring to country travel, we are reminded of the doctor who was called out at night to go with a man to make a visit to his home. Before starting the farmer wished to know the fee for a trip to his place and was told that it was $3. Upon alighting at his gate, the farmer paid the three bucks and informed the physician that the garage men wanted to charge $5 for the same trip, he having come in on the night train.

Proximity of Hospitals. The more substantial class of rural patients are rapidly acquiring the "hospital habit." This includes the neurasthenics, the hystericals, the lying-in woman, the venereals, chronic chest and abdominal patients, and hosts of them too numerous to mention. These folks dish out their dollars to the "great I ams" of some hospitals and their "corn dodgers" to the family doctor who has long since served the purpose of a spook with which to frighten the child with stomach-ache into taking his evening dose of castor oil. Perhaps the country doctor himself is responsible for this state of affairs. Be that as it may, the country doctor does not now occupy the same relationship to the family as his predecessor of a half or even a quarter of a century past.

Pre-Medical Education. Ten to fourteen years of unproductive work, along with an expensive and intensive course of study, is rapidly eliminating the strong, robust young man without financial resources from the field of medical practice, regardless of his fitness and natural adaptability for this work. This state of affairs is rapidly growing into a jungle of formidable proportions, to any one but the progeny of wealthy parentage. The man of brawn, muscle, and high class resolutions, born in the arms of adversity, is not eligible for work of this kind, because of a shortage of funds. The man of wealthy parentage is often a sort of single cylinder affair and refuses to run off macadam roads and boulevards. The country not yet being profusely supplied with these conveniences, he becomes an uncertain factor in the problem of producing a country physician.

State Board of Health Work. First-hand advice and all kinds of information are given persons "free gratis" by our highly efficient health boards. True enough, this lightens the work of the country doctor, but it also helps him not to come under the income tax laws and is a step in the right direction to eventually socializing the practice of medicine. Most of us are of the opinion that socializing medical practice will not in the end be satisfactory to patient or physician. The initiative would gradually but surely be extracted from the patient and the physician would eventually become political piè to be dished out to pets by scheming politicians. If attempted, should the profession permit it?

Social Advantages. Though far superior to the influences from which the young physician originally came, four years at high school, four years of pre-medical college training, four years at the medical school (or five, as some have it), and one or two years' internship, make all told twelve to fourteen years of city life and social contact to be dispensed with in some manner. No ambitious young man can readily break the ties that bind him to the influences which surrounded him with the halo of achievement in the study and completion of his medical course. If they are easily

broken, it is also true that they were not efficiently made. The odor of new mown hay, the morning call of the quail, the lowing of cattle on a thousand hills are "as the sound of brass and a tinkling cymbal," when contrasted to the dust and clatter of a city street. It is a sort of down and out proposition for him to think of this when considering a country practice, and the result is that some of the city physicians would rather subsist on tooth picks and muddy river water than to live in the country and fare sumptuously every day, in the air of some peaceful valley, such as no other country but Virginia can afford.

The above facts will explain in part the dearth of physicians in the rural districts. However, the laws of compensation always seek an equilibrium, and we are convinced that a solution of this problem will eventually present itself to our profession, as we continue to progress towards the highest civilization possible for man to attain.

VERTIGO—ITS CAUSES AND DIAGNOSIS.*

By WILLIAM C. MOOMAW, M. D., Petersburg, Va.

During the past several months a number of cases of vertigo presented themselves for diagnosis and treatment. They were of such character and interest as to focus our attention upon this subject. The purpose of this paper, while laying no particular claim to originality, is to study, clarify and classify a symptom of disease occurring not only in the sveral departments of our special field, but in the field of General Medicine as well. It becomes necessary, therefore, to have a working knowledge of the source from which this symptom arises, and of its various types which might indicate a particular source of origin.

Technically, vertigo should be differentiated from such manifestations as "dizziness" or "giddiness", though these terms are often used synonymously in the literature, and are confused in the patient's statement of his sensations. Vertigo is invariably associated with a perverted state of one or more of the organs or functions of the body, while dizziness, or giddiness, may be and usually is purely psychological or physiological; as when one looks down from a great height or gazes upon a harrowing spectacle, or when, as in play, a child spins round, or when a constant current is passed from ear to ear, or the caloric test applied, or in markedly altered conditions of atmospheric pressure, as with mountain climbers and the opposite state, caisson workers. Hence, it would seem that the term "Vertigo" should be reserved for those subjective sensations contingent upon the several pathological states of the organs or functions affected.

Vertigo, as defined by Frussell, "is the consciousness of disturbed equilibrium due to a disturbance of the nervous mechanism which governs the relation of the body to external objects". Sensory stimuli from the specialized end-organs of the vestibular nerve, kinesthetic impulses from articular surfaces, their associated tendons and muscles, stimuli from the eye and its muscles, and possibly also from tactile terminals in the skin, are transmitted to certain centers in the hind brain from which motor stimuli go out to one or more muscle groups which have to do with the body equilibrium. Any disturbance, therefore, which initiates, un-times or delays the transmission of these stimuli, whether efferent or afferent, breaks up the muscle synergy, and gives rise to symptoms, one of which is vertigo.,

The causes of vertigo may be classified with reference to origin as, (1) Aural, (2) Visual, (3) Nasal, (4) Toxic, (5) Circulatory, (6) Organic and structural changes, (7) Neurotic, (8) Paralytic, and possibly (9) Hereditary.

Aural vertigo, which is the most predominant form of true vertigo, may be due to a wide range of structural and functional changes and disturbances in the ear. Malignancies and infections, notably syphilis, may bring about loss of integrity of the structures involved, but the principal etiological factor is pressure exerted in various ways and in such manner as to alter the normal tension of the vestibular fluid; as for instance, tubal catarrh with blocking or stenosis of the eustachian tube, tubotympanitis with exudate in the tympanic chamber, acute catarrhal otitis media with blood or exudate, acute and chronic purulent otitis media with pus pressure, otosclerosis with stapedio-vestibular ankylosis, inspissated wax or foreign bodies in the external canal pressing on the drum membrane, these and possibly other disturbances are factors in producing pressure through the vestibular windows.

*Read before the Virginia Society of Oto-Laryngology and Ophthalmology in Richmond, February 3, 1921.

Within the labyrinth a change of pressure may obtain from anemia, hyperemia or hemorrhage, or from circumscribed, serous or purulent labyrinthitis or from perilabyrinthitis.

Visual veritgo is contingent upon false localization and more particularly and intensely with false movement of objects. Glasses used for the first time, or strong lenses as for aphakic eyes, or decentered lenses, cause objects to appear out of place because of prismatic deflection. Paralysis of one or more of the eye muscles produces to a still larger degree false localization, hence a more intense type of vertigo. This sensation is also intense when the eye acts in the direction of the paralyzed muscle, giving rise to false movement of objects. This is especially true when the trochlearis is involved, and gives rise to great annoyance and even danger in going up and down stairs. Disturbances of the nystagmus circuit, and optical nystagmus coming on late, especially miner's nystagmus, produce vertigo. This sensation is also associated with asthenopia in ill-sustained or definite accommodation insufficiency.

Nasal obstruction and accessory sinus diseases are given as causes, though the modus operandi is not clear. Vertigo is a fairly constant symptom in these conditions, and is probably due to consequential eye conditions, such as accommodation and convergence insufficiency.

Toxemia is often responsible for vertigo. The toxic agent may be either chemical or bacteriological; of the former, alcohol, tobacco, coffee, and certain drugs as the salicylates, quinin and others. Uremic materials, also, should be included. Infectious agents, principally from the gastro-intestinal tract, are causative factors and stand back of the stomachal vertigo of Trousseau.

Disturbances of the circulation as cerebral anemia in aortic disease, or from the hemorrhages and blood changes, and cerebral hyperemia in mitral lesions and arteriosclerosis are familiar causes.

Organic diseases of the brain causing vertigo are multiple sclerosis, tabes, brain abscess and brain tumors, particularly if in or near the cerebellum. Epilepsy, both grand and petit-mal and psychical, is usually preceded by vertigo which is often an aura of the disease.

Of the neurotic states, neurasthenia and hysteria are the most prominent conditions with which vertigo is associated.

Paralytic vertigo is described as Gerlier's disease, and is found in epidemic form in certain parts of Switzerland. "The patients complain of violent vertigo, diplopia, temporary amblyopia, difficulty in swallowing and chewing, and on examination show ptosis and paresis of the extremities and of the muscles of the neck. The disease is paroxysmal in character. In the intervals between the attacks the patients feel well."

Some observers describe an hereditary form of vertigo about which little is known.

The foregoing citations cover nearly all, certainly the more important and most usual sources of this sensation, and should pave the way to a definite diagnosis of vertigo, which is the second phase of our study.

A patient presents himself complaining of vertigo, or as he expresses it, "dizziness" or "swimming of the head." How, then, are we to determine its nature and source? The process of diagnosis is one of elimination. In the first place it is well to keep in mind the fact that vertigo is purely a subjective sensation, and that many patients are unable to intelligently describe it, which makes it at best vague and indefinite. It is important, therefore, to ascertain as accurately as possible its exact nature. We should determine, for instance, whether the patient himself seems to rotate or shift, or whether the apparent movement is with surrounding objects, and if so, whether the movements are up or down or to one side or the other. Furthermore, inquiry should be made as to the conditions under which the attack is precipitated; as, when lying down, sitting or standing, stooping or rising from a low position, or during or following sudden movments of the head. The patient should be questioned as to the time and duration of the sensation, whether at day or night or both, whether the onset be gradual or sudden, periodical or constant.

Having taken the history, which usually reveals that the patient had been treated along the lines of least resistance and purged of his gastro-intestinal sins, we proceed to clear the field, and should be able definitely to exonerate or indict the ear, the eye or the nose.

Examination of the external canal and the drum, and inflation of the eustachian tube,

together with the history, will clear the diagnosis of the middle ear. Of prime importance is the elimination of labyrinth vertigo because of its close relationship to that of intracranial disturbances. To quote from Andrews, "The types of vertigo of chief concern to the otologist are those associated with intracranial disease or with intra-labyrinthine disturbances. It is sometimes very important to the neurologist to rule out the labyrinth before he can be quite sure as to the symptoms which seem to point to some intracranial lesion, and in this work the otologist should prove that his work and special knowledge are indispensable." In speaking of labyrinth involvement, this observer says further that "The classical picture is that afforded by so-called Meniere's disease, which is rare enough as such, but has so fastened itself upon the clinical mind that no mention of vertigo is quite complete without it. From a pathologic viewpoint, Meniere's disease is labyrinthine apoplexy, that is, a hemorrhage into some portion of the labyrinth. In the severe and extensive lesions, both the cochlear and vestibular portions of the labyrinth are involved, and we have, therefore, deafness, noises, nystagmus, vertigo, nausea and vomiting. Rarer symptoms are fullness in the head, cerebellar ataxia and diarrhea." This condition should not be confused with the Meniere's symptom-complex, which type is periodical, gradual in onset, and has a history of previous ear disturbance such as deafness, otitis media and the like. Meniere's disease proper is sudden, more instense in all of its manifestations, vertigo especially severe, and with a history of no previous ear involvement. The diagnosis of labyrinth disease is now greatly facilitated by the several methods of functional testing which may be had from many of the current text-books on this subject, and are elaborately worked out in the Barany method.

The diagnosis of visual vertigo is often made by the patient, when he discovers that by looking through the center of his lenses, or covering the paralyzed eye, or being in the dark, clears up the vertigo. Congenital nystagmus does not cause vertigo because the child learns to interpret the displaced images, hence there is no false movement; but in acquired or later forms, vertigo is usually present and must be distinguished from that arising elsewhere. The muscles are to be tested out with prisms, the tangent plane, or other tests. It is well to recall that vertigo is especially severe in peripheral paralyses. Diplopia is very slight in paralyzes of central origin, therefore, vertigo is correspondingly so. Vertigo associated with nausea and vomiting would suggest intracranial factors with increased brain tension, on which state the ophthalmoscope would probably throw additional light.

Vertigo of nasal origin can usually be ruled in or out by a thorough nasal examination, x-ray of the sinuses and tests of the eye muscles. The nasal type of this sensation is not complained of except in movements of the body, as in rising or stooping, never when lying down as in the labyrinthhine type.

In eliminating vertigo in the above three sources of origin, we shall have scored our part in the diagnosis, and may, then, refer the patient to general medicine.

5 Adams Street.

EPIDEMIC ENCEPHALITIS. REPORT OF A CASE.*

By W. P. JACKSON, M. D. Roanoke, Va.

On January 19, 1921, a patient with the following history came under our observation:

Family history and past history of no importance here.

She is 37 years old, single, and school teacher. Complaint at the time was trouble with eyes and nervousness. Patient states that just before Christmas she had a slight cold, and she noticed at night, while working over school papers, her eyes troubled her—vision would get dim and she would have to stop. About December 29th, she began to feel bad and had a dreadful pain across right shoulder. Took 5 grains calomel at bedtime and the next day noticed double vision, but felt better. She did not bother to see a doctor. Double vision continued and a week later she began to feel terribly tired. She could not resume her school duties after the Christmas holidays. Drowsiness also appeared about this time, which persisted for several weeks. She could sleep very easily and often slept a long time in the afternoon and again at night, but recently has not been sleeping well at night. She has had some giddiness. Pain in the arm has disappeared, and she has had no pain elsewhere. About

*Read before the Roanoke Academy of Medicine on March 21, 1921.

nine weeks ago she noticed a numbness on right side of face and in right arm. No numbness in right leg. Numbness involved only half the hand, thumb, index and middle fingers. She consulted her family physician, who advised her to have glasses fitted. This she did and said she was able to read for a few days after getting glasses. There never was any trouble with speech or swallowing.

Physical examination at time of first seeing her showed a patient looking fairly well. In talking there was a tendency to get tired. Both eye grounds were normal. Pupils were practically equal and reacted to L. & A. Winking was frequent. There was no ptosis nor nystagmus brought out by looking either to right or left or down, but there was considerable difficulty and strain in looking up. Muscles of mastication acted well and symmetrically. Jaw jerks active. Sensation of touch and pain a little more distinct on left than on right side of face. Corneal reflex more active on left than on right. Face symmetrical. Tongue protruded well and straight. Movement of arms good. Right arm tremulous. Biceps and triceps reflexes slightly hyperactive. There was a little difficulty in picking up objects with thumb and two first fingers on right hand. Movement of legs a little uncertain. Muscle strength good. Knee kick hyperactive. Bilateral patellar clonus. Ankle jerks hyperactive.

Lumbar puncture showed a cell count of 20 with lymphocytes predominating. Globulin test negative. Wassermann test with alcoholic extract antigen and cholesterinized antigen both negative.

Since this examination was made, patient has kept a quiet life and taken a little tonic, and potassium iodide.

Examination made a few days ago shows patient getting around and feeling very well but not able to resume duties on account of some nervousness and weakness. She feels giddy when on a car or elevator. There is no double vision now, but she tires easily when reading.

At present her extra ocular movements are fairly good with a definite effort on attempting to look up or to any extent either to right or left. Pupils react to L. & A. All facial muscles symmetrical. All reflexes are equal and hyperactive with the possible exception of being slightly less active in the right arm. No disturbance of sensation is now made out on face or arm, but there remains a weakness of thumb, index and middle fingers of right hand. Patient writes with great difficulty and unsteadiness. Recovery, then, has been partial and very slow, but definite. Just whether there will be complete recovery is a question.

Another case that came under my observation while I was working at the Harriet Lane Hospital for Children, in the summer of 1920, shows another type of the disease. This case is reported by Happ and Blackfan, together with four others, illustrating insomnia following acute epidemic encephalitis. Briefly, the history is as follows:

A white girl, aged 5½ years, was brought to Harriet Lane Hospital, July 6, 1920, because of inability to sleep at night. She had been well up to February 20th, on which day she became excited, talked foolishly, and developed an internal squint. This excitable state lasted for two days, after which time she became rational and the squint disappeared, but from this time she had not slept well at night. She would stay awake for several days and nights, and then sleep heavily all day. She was taken to a hospital, where she remained six weeks. Sleeplessness at night was noted there. On her return home, June 21st, she would stay awake until three or four o'clock in the morning; then she would sleep the better part of the next day. At times at night she would get very excitable and spit. She was admitted to the Harriet Lane Hospital, July 16, 1920, in order that her nocturnal behavior might be observed. The first night she slept all night; the second she was awake until 8 A. M., talking incessantly, tossing about and waving her arms in the air. From 8 A. M. she slept until noon. She was then quiet until evening, when she again became very restless, excited and active, and remained awake until 3 A. M. She slept until breakfast and, following this, slept nearly all day. During the night she was careless in her habits and frequently soiled herself. Since her discharge, July 11th, there has been no improvement in her condition, and she is allowed to sleep when she chooses during the day.

After reviewing those five cases, one of which I have just mentioned, the authors feel like unquestionably classifying such cases which show nocturnal wakefulness, excitability and restlessness, followed by deep sleep, almost

stupor, during the morning, and which are accompanied by a change of disposition and behavior during the waking period—these symptoms persisting for several months as a characteristic syndrome following acute epidemic encephalitis in childhood. They further feel that the term "lethargic" is unfortunate in that it does not embrace such cases that really belong to this disease.

There is a very good summing up of the symptoms of this disease given in London Letter appearing in the *Journal of the A. M. A.*, June, 1918, in which 87 cases are reviewed. In their summary, pyrexia was present in 41 cases early in the disease, in eight cases there was no fever, and in the others no definite information as to fever. There was headache in 31 cases, drowsiness in 29 cases, lethargy in 18, stupor in 13, asthenia in 12, coma in 9, vertigo in 17, delirium in 20, absence of lethargy in 3 cases, and sleeplessness in 5. Of cranial nerve involvement, there is given bilateral facial paralysis in 9, unilateral in 11, ptosis in 34, ophthalmoplegia in 18, diplopia in 18, strabismus in 10, nystagmus in 9, double third nerve palsy in 6, pupillary dilatation with failure to accommodate in 2. This helps to explain its being called acute infective ophthalmoplegia. Speech was affected in 5 cases, muscular rigidity in 10 cases, tremor in 9, and muscular twitchings in 6. Constipation was recorded in 35 cases, vomiting in 10, difficulty in swallowing in 9, and dryness of throat in 3.

The pathology of the disease as given by Flexner is described as affecting particularly the brain, and especially the gray matter at the base of the brain. The structures usually affected are those about the third ventricle, the aqueduct of Sylvius, the lateral ventricles, the pons, and the medulla.

There is a cellular infiltration, mononuclear in type, about the blood vessels and the nerve tissues themselves, small hemorrhages and an outpouring of plasma and lymph into the tissue. The lesions occur in nodular and in diffuse forms. The paralyses of the ocular, facial, and other muscles arise from the invasions of the nuclei of the corresponding nerves.

It is interesting to note that there was an outbreak of so-called "Sleeping Sickness" in Germany in 1712 and another in Italy in 1890 called "Nona." It is not known, of course, whether these epidemics represent the same disease, but there are some symptoms very similar in each one, and especially interesting is the fact that they all followed epidemics of influenza.

Levaditi and Harvier, by intracerebral injection of emulsions of brain from patients dead of epidemic encephalitis, have produced lesions in rabbits that appeared similar to those in man, and from these rabbits a like disease has been transferred to guinea-pigs and monkeys. They further found that the virus would pass through Chamberland filters Nos. 1 and 3, and that its activity remained after exposure to 1 per cent. phenol for five minutes and after being placed in glycerol and kept at ice-box temperature for nineteen days, but that it was killed by heating at 55 degrees C. for one hour.

Strauss and his co-workers think they have cultivated a minute organism resembling the globoid bodies of poliomyelitis which may be responsible for the disease.

The treatment is largely symptomatic with the use of sedatives in the excitement stage and stimulants in the stage of depression. Morphine has been used successfully in respiratory failure. Patients have been treated for decubitus ulcers in the lethargic stage by almost continuous tub bath in a weak antiseptic solution.

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609 *Strickland Building.*

THE MANAGEMENT OF CERTAIN TYPES OF DIABETES MELLITUS.

By WYNDHAM B. BLANTON, M. D., Richmond, Va.

In a disease as complex as diabetes, it is apparent why special types need to be recognized and considered apart. Problems arising in the management of several of these types form the basis of this discussion.

EARLY DIABETES.—The pre-symptom recognition of diabetes depends upon the routine examination of the urine for glycosuria and the routine examination of the blood for hyperglycemia. Everyone is aware of the surprises that come of a rountine urinalysis. Equally surprising are the results of blood sugar determinations. As a guide in determin-

ing the severity of diabetes, as a means in establishing tolerance after the urine has become sugar free, of knowing what appropriation the body is making of its intake carbohydrate, and as a method of ruling out renal diabetes, an estimation of the sugar in the blood is indispensable.

Often, the slightest yellow color is encountered in doing Fehling's sugar reaction on urine and one is in doubt whether to discard the result as meaningless or to report it as an indication of sugar. These reactions are seen frequently in the course of treatment of a diabetic, and are due to the faintest trace of glucose. In the supposedly non-diabetic these reactions are extremely puzzling. It is in just such cases that the blood sugar has been of the greatest service. In most instances, except those with low thresholds of excretion (renal diabetes), it appears that the concentration of blood glucose must reach 180-200 mgm. per 100 c.c. of blood before there is a spill-over into the urine. There is, therefore, almost double the normal blood sugar before we can be aware of abnormal carbohydrate metabolism by the urinary method. The most interesting and the most important span of the diabetic's life is that period during which he is piling up his blood sugar to the point of kidney intolerance.

A male adult, weighing 265 pounds, presented himself complaining of pain in the left leg. The physical examination was negative except for obesity and moderate hypertension. The urine, beside showing a little albumin and a few casts, gave an equivocal reaction for glucose. The blood sugar in this man was 180 mgm. per 100 c.c. of blood. A sharp reduction of his carbohydrates readily freed the urine from sugar and reduced his blood sugar nearly within normal limits. With normal blood and urine, his pain disappeared.

A boy of 9 years, fond of sweets, pale and under weight and infected with ascaris lumbricoides, presented himself for treatment. The urine gave an equivocal test for sugar. Blood sugar was 180 mgm. per 100 c.c. of blood. Without known alteration of diet, two subsequent examinations of the urine failed to show sugar; at these times the blood sugar was 125 and 140 mgm. per 100 c.c. blood, respectively.

A male, 25 years old, in the course of life insurance examination, gave a faint yellow equivocal Fehling's reaction. Blood sugar estimation at this time was 150 mgm. per 100 c.c.; there were no symptoms of disease. The patient's diet was not abnormal and these urinary findings occurred on several subsequent occasions. Moderate reduction of the carbohydrate intake readily resulted in disappearance of urinary sugar and return of the blood sugar to normal. The patient was then cut off his carbohydrate intake entirely and the rest of his diet considerably reduced. The carbohydrates were then gradually added to the point where his blood sugar exceeded the upper normal limits. We considered this figure his carbohydrate tolerance and sent him away with instructions to live under it.

It is believed that the carbohydrate tolerance of all such hyperglycemias and equivocal glycosurias should be established and, to this end, the patient's diet should gradually be reduced to a point where the carbohydrate intake is well below that sufficient to produce hyperglycemia. The carbohydrate intake should then be gradually increased to a point where the blood sugar begins to exceed the normal (60-120 mgm. per 100 c.c. of blood). It is believed that this should constitute our criterion of carbohydrate tolerance and not the subsequent appearance of sugar in the urine.

Fat and protein should be given in sufficient quantities to meet the caloric needs of the patient, i. e., until the patient ceases to gain or lose at a desirable weight level. The patient sent away on such a diet, however, should not be allowed to remain without medical advice, because the probabilities are that the carbohydrate tolerance, in the absence of hyperglycemia, will shortly be raised, necessitating a new change of diet.

Obesity and Diabetes.—The predisposition of the obese to diabetes is well known. Of 1,000 diabetics analyzed on the basis of weight, only 10% were below the standard weight zone, while 15% were in it and 75% above it. (Joslin, *J. A. M. A.*, vol. 76, p. 79, 1921.) Every fat person is a potential diabetic.

The danger of acidosis in the fat diabetic is likewise well recognized. Body fat or ingested fat may serve equally well as the source of the poisonous split products of fat catabolism. Fasting may precipitate acidosis upon the non-diabetic obese as well as upon the diabetic obese. More dangerous is a high fat-protein diet. The rule is generally recognized, here as elsewhere, that fat must first be withdrawn from the diet and the protein and carbohydrate reduced in turn until urine is sugar

free. The essential thing to accomplish is the establishment of as high a sugar tolerance as possible in the presence of a normal protein intake. Fat is added with extreme caution later.

In the course of treating the obese diabetic, several pressing problems may arise. What of obesity itself—shall it be reduced? If so, how much? Not all patients wish to lose weight, especially when to do so requires exercise and quantitative as well as qualitative restriction of diet for which they have no liking, and especially when their friends begin to fail to recognize them on the street or to alarm them with remarks as to how badly they are looking. The psychology of the patient has to be considered and acted upon.

What of the problem in an obese diabetic whose sugar tolerance you are trying to raise? He has been rendered sugar free and is losing weight. With each attempt to add an additional 10 gms. of glucose to the diet the blood sugar sweeps up to the 180 mark and now and then spills over with a copper reaction in the urine. In the meantime, a ferric chloride reaction in the urine persists in spite of absence of fats in the intake.

In such cases, what is to be done? Acidosis, sugar tolerance slow in establishing itself, patient on very low caloric intake, still fat but losing weight and complaining of weakness and poor diet! How serious is the persistence of the ferric chloride reaction? Shall you be satisfied with aglycosuria or attempt to reduce the hyperglycemia? What level of blood sugar shall be your desideratum? In such cases, it is a comfort to know that acid bodies in an aglycosuric urine are of little danger.

The following case presented just such problems. The patient came under observation, weighing 235 lbs., with 7 gms. per 24 hours of sugar in the urine and a blood sugar of 260 mgm. per 100 c.c. of blood. With partial starvation came acidosis which continued during the time of establishing carbohydrate tolerance, in all about 1½ months. In view of the fact that the urine was sugar free, this acidosis was disregarded. It has required six months, during which sugar tolerance was carefully built up, to get the patient to her present status. Blood sugar 140 mgm. per 100 c.c. blood, no sugar in urine, no diacetic or acetone, weight 209 lbs., intake carbohydrate 68 gms., fat 88 gms., protein 60 gms., calories 1343.

In such a case, it is imperative to raise the carbohydrate tolerance and six months of effort are repaid when it can be done. It would never have done to lose sight of her on a high protein-fat intake.

Tuberculosis and Diabetes.—The dietetic management of four cases of diabetes complicated with tuberculosis has recently occasioned us considerable worry. Landis, Funk and Montgomery *(The American Review of Tuberculosis*, vol. 2, No. 11, Jan., 1919) have lately published their impressions of this problem and declare themselves in favor of Allen's starvation plan and tolerance building. Our experience with this method has not been productive of striking results.

The first case was a female of 49 years who presented herself complaining of a cough. She had no symptoms of diabetes. She gave signs of third stage pulmonary tuberculosis in an apical cavity and a positive sputum. A routine examination discovered sugar in the urine. This quantitated 103.5 gms. per 24 hours. The blood sugar was 320 mgm. per 100 c.c. of blood, NPN 26 mgm. per 100 c.c., CO_2 50, Wassermann four plus.

She was fairly comfortable and able to be up and about. Nevertheless it was thought best to get her sugar free and, with this view, the diet was gradually reduced over 10 days to water, black coffee, and 7 ozs. of whiskey. She became sugar free on the sixteenth day and remained so for three days while the carbohydrates were being raised to 20 gms. She then began to show sugar again and was again put on water, black coffee and alcohol. She remained on this diet 10 days without again becoming sugar free. On the 21st day of her stay in the hospital her blood sugar was 350 mgm. per 100 c.c., blood CO_2 50; on the 28th day she suddenly became weak and died, still starving and still showing sugar. During this time she lost 10 lbs. She never showed more than a moderate amount of acetone and diacetic acid in the urine.

In view of the fact that the patient had no symptoms of diabetes, it might seem like dietetic meddling to upset radically her method of living. However, as she was she stood in constant danger of being swept off by coma. On the sixteenth day, instead of first attempting to build carbohydrate tolerance, she should have been put at once on 100 gms. protein, and tolerance established later.

The second case was a man of 40 years who

complained of cough, purulent expectoration, dyspnea and a loss of 75 pounds, swelling of lips and inability to use his left arm. Physical examination showed third stage tuberculosis, neuritis of the arm, thickness of speech, and a large ulcer of the left leg. On routine examination of the urine, sugar was found. This quantitated 80 gms. per 24 hours. Blood sugar was found to be 198 mgm. per 100 c.c., CO_2 68, Wassermann negative. There was a trace of diacetic acid. The patient was put on starvation and alcohol. In four days he was sugar free. Protein was then added rapidly, carbohydrate and fat more slowly. On the seventeenth day of observation, he was taking fat, 37 gms.; protein, 88 gms.; carbohydrate, 48 gms.; and whiskey; in all 1,300 calories. The urine was sugar free. His caloric intake seemed quite sufficient to meet his energy expenditure. Especially does this seem true in the light of the calorimetric findings of McCann and Barr (*Arch. Int. Med.*, vol. 26, p. 663, 1920) which go to show that overfeeding is unnecessary in tuberculosis and that in fact the food demands of these patients are extremely modest. On the seventeenth day, the patient refused food and suddenly died. In view of the fact that for the greater part of the time this patient was under observation, he had to be urged to eat all the food that was offered to him, and also the very short duration of his starvation, lack of nourishment seems to have played very little part in the result. After the first four days of starvation he did not lose any weight. Though he was able to be up until two days before his death, he was very weak and it is felt that he died of tuberculosis.

The third case was a man of about 30 years whose complaints were weakness, loss of weight, polyuria, polydipsia and polyphagia for seven months. His urine showed quantities of sugar. The blood sugar was 240 mgm. per 100 c.c., CO 53, weight 83 lbs. His tuberculosis was not seriously regarded. His diet was reduced. He was then starved. On the twelfth day he was sugar free. He was then allowed 60 gms. protein. By the 22nd day he was taking in addition 90 gms. of fat and by the twenty-fourth day, 50 gms. carbohydrate. After this, starvation was thrice instituted with success to free the urine of transient slight traces of sugar.

On the forty-seventh day his temperature rose to 103° F. The sputum contained many tubercle bacilli. Several days later there were well developed signs of bilateral tuberculous pneumonia of the hilus type, with central softening rapidly developing. The temperature continued and the patient grew gradually worse, while the urine continued free from sugar and acid bodies. The patient was taking 1,600 calories daily, 50 gms. of which were carbohydrate. On the seventieth day, the patient died. Autopsy confirmed the physical findings.

The patient is interesting because of the sudden flaring up of his pulmonary tuberculosis several weeks after the radical changes in his diet. His diet was carefully controlled and calorically sufficient for his body needs. Sugar ceased to appear in the urine. Thus in 70 days, our apprehension shifted from his diabetes to his tuberculosis which was rapidly fatal. His diabetes was controlled by diet. It is not believed his tuberculosis was made worse by it. It is thought that this end would have come just as quickly and from the same cause had any other course been adopted.

The fourth case was a man of about 45 years who came under observation from loss of weight, weakness, cough, expectoration and pain in the chest. It was further elicited that for one year he had had polyuria, polyphagia and polydipsia. His Wassermann was four plus. One month previously he had been in a tuberculosis sanatorium. At the time of examination his sputum was negative and his chest signs equivocal. His urine contained 160 gms. sugar per 24 hours. His blood sugar was 380 mgm. per 100 c.c., NPN 28. On a reduced carbohydrate intake before starvation was attempted, urine sugar dropped to 10 gms. per 24 hours and later to a slight trace of sugar. This continued on about 1,200 calories' intake, 37 gms. of which were carbohydrate. No changes were noted in the patient's chest after nine days when the patient became alarmed at his loss of weight and broke training. He had dropped from 101 to 88 pounds.

Old Age and Diabetes.—Diabetes forms an important chapter of gereology. In the old, the disease is frequently encountered associated with serious complications. The therapeutic problem is then even more complex, as for example in arranging a diet for a diabetic nephritic.

A man of 76 years, whose diabetes was of twenty years' standing, showed in addition fatty degeneration of the myocardium, arterio-

sclerosis and chronic nephritis. He eventually died of chronic uremia after two months' confinement to his bed.

As a matter of fact, this patient was never rigidly restricted as to his carbohydrate intake and was in consequence never free from glucose in the urine. His complaint was that he was already losing strength and the suggestion of further reducing his diet or starvation never secured his approval. But on his death bed, nature did what he would not allow his doctor to do in the earlier stages of his disease. The anorexia and vomiting which accompanied his chronic uremia induced such tissue starvation as to absolutely free his urine of sugar and acid bodies. His blood sugar in the meanwhile fell from 280 to 170 mgm. per 100 c.c. of blood.

Diabetes of long standing implies a certain successful adjustment on the part of the body to its abnormal metabolism. Such cases are difficult. Radical changes in their diet have to be made with extreme caution and very slowly. To do otherwise is to court disaster. Diabetes in the old is apt to be of this type and demands great care in its management.

On the other hand, diabetes does begin late in life. Joslin reports 25 cases with onset after 70 years. Such patients without, and often in spite of, complications, should receive the rigid treatment of younger diabetics in an effort to render them sugar free and bring relief to distressing symptoms. Because of old age, no diabetic should be denied the benefit of modern diabetic treatment.

A woman of 70 years had received treatment for about one year. She presented herself with symptoms of weakness, pain, loss of weight and pruritus. Her blood sugar was 420 mgm. per 100 c.c., plasma CO 50, urinary sugar in 24 hours 63.6 gms. and acetone and diacetic acid were present. After preliminary omission of all fats, her protein was halved and then her carbohydrates gradually reduced to a few grams, when she became sugar free, the blood sugar standing at 170 mgm. per 100 c.c. Covering a period of 2 months, her tolerance was built up until at present she is taking from 40 to 60 gms. of carbohydrate and sufficient fat and protein to maintain her weight content at the desired level. Her blood sugar is about normal (135 mgm. per 100 c.c.) and the urine is free from glucose and acid bodies. She has gained 20 pounds and has no symptoms of which to complain.

SUMMARY.

Four types of diabetes have been discussed from the point of dietetic management.

300 West Grace Street.

THE MISSION OF MEDICINE.*

By MARSHALL J. PAYNE, M. D., F. A. C. S.,
Staunton, Va.

When, by the divine Creator's command, man came into existence and stood upon the threshold of a new world endowed with all the attributes and physical and mental faculties of a perfect being, by reason of his surroundings and unchanging and unchangeable laws of nature he became an involuntary subject to the forces of nature.

Physical necessity required air, water, food—sustenance. The struggle for existence demanded protection from the changes of the seasons, the inclemency of the weather, the forces of nature, and likewise the violence of animal life. The laws of nature control the growth and decay of all life, both animal and vegetable.

Ignorance of the forces and provisions of nature brought accidents, poisonings, injuries, diseases, untimely decay and death. Just as the physical necessities prompted man to acquaint himself with the provisions of nature intended for the continuance of life, his sustenance, growth and development, so the occurrences of accidents, calamities and illness caused man to consider the decay of life and the final destruction of the physical being, man.

The process of life, growth and decay, the phenomena of reproduction, excited first surprice, then attention and thought; while the afflictions and ills of life caused primitive man the greatest concern. It requires no fanciful stretch of imagination to convince one that the occurrence of pain gave the first human being great concern for relief therefrom. It may well be imagined that the same or greater concern was displayed for relief in cases of accident, illness or death.

Go with me in your imagination to the couch of leaves and flowers whereon lay the now to be first mother in the throes of labor and see her companion, alone and helpless, trying in the anguish of despair to relieve his

*President's address before the Valley Medical Society, May 26, 1921.

helpmate. It was here that the thought of man turned to the art of healing, that medicine had origin; for here the noble impulse to help man in pain or distress came into existence. Thus, it may be seen that through necessity man's first thought of the healing art was inspired by the pain attending the natural processes of life. How naturally would he apply or associate the same thought to the more unyielding pain of accidents or disease!

Founded, therefore, through necessity, the study of the processes of nature and the application of means for the relief of the ills of life, at times crude, hurtful in the extreme, passed on from day to day, from one to another, through succeeding days and years to generation after generation, by word of mouth or example, selecting that remedy or method, or choosing those who showed the more successful knowledge, until, out of the crude art of healing, stimulated by the exchange of suggestions, and later led by the dim light of empiricism, aided by the growth and benefit of experience, there evolved rational medicine. The growth of rational medicine has been so rapid that necessity now demands that it be composed of highly specialized interlocking branches.

From this broad and comprehensive, though hurried, survey of the origin and growth of medicine, let us turn to the future to see what lies before; what yet awaits the accomplishment of medicine and how medicine may best serve mankind. That is, as I see it, the mission of medicine.

The task of medicine of the future, therefore, is the proper directing of the conduct of man's physical and mental life. Under this broad grouping may be placed, and there is required:

First, the study of man, that is, the structure, composition, and forces of the body in the most comprehensive and exhaustive way. This study should include the subjects of histology, anatomy, chemistry, and physiology of the human body, indeed of all animal life, in order to fix a normal standard.

Second, the study of the departures from the normal, that is, diseases. It may be asked if all is known of diseases that may be known. By no means—far from it. It should be required that every physician and, for that matter, everyone applying means to cure or treat diseases, should keep accurate records of all available and pertinent matters relative to the patient, the nature of the disease process, means applied for the relief thereof, and the reason for applying the particular treatment in the given case. Such records should be made open to inspection, and available for collection and study in order that the truth in medicine may be established in all its forcefulness. This record should be made a required part of every physician's work and should form the basis for his permit to continue the practice of medicine, or in any way aid or direct the conduct of those seeking his services. This should be required in every case, and, further, a copy of the case history and record of all the treatments of the case in question should be made a part of every record of death.

Many evil and dangerous methods of practice would be banished from the face of the earth. Medicine, and I use the term here to apply to the practice of the art of healing the sick, is anxious for the truth to be known. To accomplish this, a careful record of all pertinent or salient data connected with the person and the case should be obtained in all cases. The results of a full study of this data would then show the truth. It will take a long time and a great deal of labor to accomplish this work, but it must be done.

The study of hospital cases will lead the way, because the study of cases entering into the hospital for treatment, is, as a rule, more carefully and thoroughly done than in private practice. The hospital must furnish the facilities for the proper recording and study of cases. Indeed, this is essential and demanded that hospitals may meet the minimum standard exacted by the Association of Hospitals and the American College of Surgeons. The keeping of such records is not difficult nor laborious, and at once a splendid improvement in the work of the hospital will be observed. More accurate diagnoses will be made and, therefore, more appropriate treatment applied and better results obtained. The same will be found true in private practice.

The truth is desired by medicine; the truth is essential; the truth will establish medicine forever as the leading science and the most beneficial and far-reaching agency for the welfare of man. The truth will set medicine free from the shackles of empiricism, dogmas, and forever silence the voices of ignorant and

selfish cults and practices. The truth will lift the light of medicine till all shall see and become the recipients of its beneficent purposes and influences. Let all who seek to direct the agencies intended for man's relief from disease submit to a board of medical review the record and management of all cases in order that evil practices may be eliminated and correct methods established.

I shall not, at this time, attempt to show the great importance of medicine, for one only needs to point to the achievements of modern medicine and surgery, to the far-reaching benefits of public health measures, and to the successful re-education and restoration of the crippled and deformed through the means of rational medical procedure. I submit that while this is most desirable, the accomplishment can only be made possible by every hospital and everyone engaged in the practice of the art of healing furnishing a truthful record of every case coming under care. There is needed, therefore, for this task, broadminded and unselfish men, men of attainment who are willing to search constantly for the truth in order that rational medicine may progress to the exclusion of all quackery and irregular methods of practice.

The quack and irregular practitioner, unlearned, unscrupulous and untruthful, pervert public opinion and hinder the establishment of the truth. Men who do and dare, the men with initiative, are the men who force themselves to the top. Caste, professionalism, unionism, cliques and clans, even groups, may tend to hobble initiative, and by reason of domination or radicalism or ultra-conservatism limit the progress and the influence of medicine.

There never was a time in the history of the world when medicine assumed such a prominent place in human affairs as it does today. The individual physician who measures up to the high requirements of his calling is a more looked-up-to man in the community than ever before, for whatever real regard the public has for medical men is due to the fact that they are an unselfish group of solid citizens that fulfill an unusual private and public function.

In order that the most rapid and sanest progress may be made, that the truth may be early and finally attained, the sick should receive all the benefits of hospital treatment. To this end the active co-operation of the public is required, and just as the public becomes fully educated to the benefits of hospital treatment, just so will the public adopt the plan of co-operating with hospitals in the care of the sick. Then, hospitals will either receive through public contribution or taxation sufficient funds for properly conducting the treatment of the sick.

Medicine from the first subscribed to a code of ethics—of right living—and has always been guided by idealism, and maintained an honorable attitude in the welfare of all public affairs. In the private walks of life men of medicine have left examples of conduct, loyalty, fidelity, truthfulness, patriotism, and unselfish devotion to the service of mankind unequaled and unsurpassed. When men of this type dedicate themselves to such a task, no obstacle, save time, can obstruct the fulfillment of the mission of medicine.

The organization of a new medical association must needs give ample reason for its existence. The Valley Medical Association seeks to enlist the services of all the physicians of the beautiful and historic Valley of Virginia in the effort to aid the establishment of the proper public esteem for medicine to render such service to mankind that the future will regard it more honorable and distinguishing than that of arms. Medicine is full of human interest and appeals, therefore, to the unselfish man who will take the time to mix good fellowship and get-together talks with common sense, which is the natural foundation of successful medical societies.

The task is outlined. Its accomplishment rests with you. Of the final outcome I have no misgivings. When this is consummated, idealism of medicine will be accomplished, the truth will be established, and rational medicine will then serve as the most beneficent friend of mankind.

ANALYSIS AND TREATMENT OF A CASE OF JUVENILE APHASIA.

By E. BOSWORTH McCREADY, M. D., Pittsburgh, Pa.
Medical Director, Wildwood Hall.
and
ALICE B. COLCORD, Kenosha, Wis.
Former Head Teacher, Wildwood Hall.

Aphasia is a term applied to a condition caused by disorders of the faculties of language. It may include a disorder of both language appreciating centers and the lan-

guage producing centers. The first affects the centers of: hearing, vision and touch; the latter, the centers having to do with the emission of language, or the center of speech and that region controlling the producing faculties of writing and gesticulation.

One classification divides aphasia into two kinds: motor and sensory, according as the two processes of reception and emission are affected. Briefly: *Motor Aphasia* includes the failure to depart with an expression equivalent to ideas formed. There is then a loss of some forms of speech utterance for which an evocation of articulatory kinaesthetic memory is required. This affects the movements of articulation, making the person unable to produce words necessary for the expression of ideas; it affects the movements used in writing, making the person unable to produce writing necessary for expressing ideas; also affects movements used in gesture language, making the person unable to express ideas by gesture or sign. These three forms of Motor Aphasia have been called "Aphemia," "Agraphia" and "Amimia," respectively.

Sensory Aphasia includes the failure to receive communications and make them fit spoken words. This affects that part of the brain concerned in seeing or understanding written words, and is known as "Word-blindness"; it thus affects reading. It may also affect that part of the brain concerned in auditory perception of different words; also that part of brain having to do with memories of gesture language. These conditions have been called "Alexia," "Word Deafness," "Sign Blindness," "Apraxia," respectively.

Another classification subdivides Sensory Aphasia into *Word Blindness, Sign Blindness, Optical Agnosia, and Word Deafness.* We may add a list of mixed forms known as "*conductive aphasia*," "*paraphasia*," *and* "*jargon.*" The first forms result from failure in emissive faculties; the latter, from failure in the receptive faculties.

These may be all present in partial forms. There may be some motor and some sensory aphasia present, but not all forms of either in one case.

Case: R. Mc. Referred by Dr. John A. Lichty, Pittsburgh. Age 18. Admitted to Wildwood Hall, October 14th, 1919. Speech difficulty dates from attack of diphtheria the previous May, which resulted in a right-sided hemiplegia due, presumably, to an embolus. The paralysis and aphasia were nearly complete at first, but gradually function became partially restored until the boy was able to get about and make some little use of the affected limbs and could, very inadequately, express himself in his own family circle, though he was never sure that he would properly express his thoughts and would attempt little more than monosyllables. His sensitiveness regarding his condition had caused him to become very much depressed and morose and the fear of making mistakes in language had resulted in inhibition of thought and expression which tended to aggravate his difficulties.

Taking up signs of *Sensory Aphasia* in case studied we find the following conditions present to some degree:—

Word Blindness or Alexia.—Patient cannot read printed matter well enough to grasp meaning at once. He does not recognize some of the very simple words at sight. When the word is spelled for him, he recognizes it, but has difficulty in saying it at once. When he comes to the word "drum" he says "beat"; to the word "bell" he says "ring." When he came to the word "measured," he beat a measured time with his hand to show me he understood the word, but can not say it. He miscalls some words, saying "is" for "it," "with" for "which," but realizes his error when he reads aloud. He spells a word through, pointing to each letter, but with great difficulty. Sometimes, for a few seconds, the word "the" will convey no meaning whatever; then he reads it correctly. He anticipates words leaving out small words as, "His hair is long" for "His hair is crisp, black, long." If corrected and started again, he omits many words and mixes the sequence. He can not read his own writing, or recognize mistakes in his own writing. He can read to some extent to himself and grasp the meaning of what he reads. From this we draw the conclusion that though word blindness is an element, it is a small one and that the difficulty in reading comes more from the panic resulting from the inability to produce sounds necessary for words.

There is no *Sign Blindness* present as patient can always resort to gesture language when difficulty arises with speech language. Also no *Optical Aphasia*, as patient is able to understand significance and uses of things around him.

There is no *Word Deafness* present as patient is able to hear and receive auditory per-

ception without difficulty. Understands all spoken language, interprets all sounds, carries out commands quickly and finds his own mistakes in his speech language. He can also enjoy matter read to him.

As for the symptoms of *Motor Aphasia*, the following conditions are present: That form of Motor Aphasia called "Aphemia," and having to do with center for the memories of the movements of articulation, resulting in the inability to produce the words necessary for expressing an idea. This involves the loss of some forms of speech utterance for which an evocation of articulatory kinaesthetic memory is required. Patient sees letters, but cannot say them at once. Miscalls letters often. By means of gesture or sign, it is found that he recognizes them at once but cannot say them. This results in a loss of spontaneous speech. There exists also an inability to repeat words correctly the first time. He says "pell" for "spell," "olding" for "oldest." Sometimes the words are so confused that they are unintelligible. He will recognize mistakes himself and after many repetitions can say them correctly. He uses many wrong (inappropriate) words as "I am Lamertine" for "I live in Lamertine." The patient realizes this difficulty and seems disgusted that he cannot say what he thinks. This causes an inability to spell correctly. He cannot spell aloud the simplest words on first trial.

There is a slight difficulty in writing with the right hand, but it is doubtful that this comes under the term *Agraphia*, but rather from an inability to express thoughts in writing. The memories for muscular movements in writing are intact, but the confusion comes when patient is asked to write spontaneously. Corresponding to the loss of forms of speech utterance for which a memory of kinaesthetic articulatory movement is necessary is a loss of forms of writing for which a memory of muscular movements used in writing is necessary. Corresponding to wrong sequence of words and words left out. (See Conductive Aphasia), repeated, and confusions in speaking is found wrong sequence of words, misspelled words, words repeated and illegible in writing. Also wrong words are used to express the idea. "I am Salem" for "I live in Salem." Patient copies—graphic or printed—perfectly. Writes all figures in sequence.

The power to write voluntarily and to dictation is not entirely lost, but it is not intact, corresponding to the difficulty in speech. For example: Spontaneous note written to friends reads: "To Havey. How doing uasest things you? R. S. M." When asked to read the note he could not, and attempted to make over words. When asked what he wanted to write he said. "What are you doing today?" Another was written: "Miss Chlorne: To yer a rains day yor was doing?" This was for: "Miss Colcord, this is a rainy day. What are you doing?" The degree of inappropriate words corresponds to his speech defects.

Dictated work shows the same defects: For "I live in Salem" writes "I am live Salem," for "My room has white walls" writes "The my whitter ralls," for "The trees are turning color" writes "You color trees coloring." He is unable to dictate letter in correct form.

Conductive Aphasia is a condition affecting the associating tracts in the so-called zone of language. The result is that the patient skips words, repeats often and talks confusedly. This is caused by a failure in the emissive speech faculties in this case, rather than a defect in the receptive faculties. The "Lord's Prayer" was given for him to say because he once knew it. He stumbled over it, leaving out words and getting them in wrong sequence. "Kingdom come in Heaven" "Bread—give." Also "Psalm of Life" said "Tell mournful numbers—life is but an empty dream—For the slumbers not what they seem," etc. On frequent repetition of poem, he could say it all without mistake. He will repeat words in sequence, but with great effort. He knows that what he is saying does not sound right.

Patient responds positively to "Proust Lichtheren Test" for Internal Language. (Stated gestures to show appreciation of number of syllables contained in a given word.)

Association powers intact. When asked to give words called to mind they were as follows:—

Flower—"Beautiful."
Tree—"Chestnuts."
Light—"Dreary day."
Street car—"Butler Short Line."
Food—"Supper."
Garden—"Mother Nature."

Diagnosis: Partial Motor Aphasia including slight Aphemia, Amimia, Conductive Aphasia (marked), Paraphasia (slight), and Alexia.

Treatment:—

ARTICULATION FOR THE DEVELOPMENT OF VOICE POWERS.

BREATHING EXERCISES:—Diaphragm breath-

ing: Place hands on diaphragm, keeping throat and pharynx well open, current directed well forward from the throat. Inhale quickly—exhale slowly—inhale slowly—exhale quickly.

Hands sideward upward inhaling.

Take deep breath and exhale slowly on (ah) for tone vibration, also (ah—la—la).

Count with metronome.

Exercises for Speech Organs:—Exercises for larynx and pharynx to lower the base of the tongue and render the tone full and smooth.

"A—CH"
"GA—CH"
"CA—CH"

Exercises for lip, tongue and palate:

"A—LA"

Pout lips.

Exercises for development of kinaesthetic articulation processes.

Technique for Articulation.

Training in melody and flexibility in tone:

"How do you do?"
"Papa" "Water"

Octave twist on "papa"—"water."

Combination of vowel and consonants (initial and final explosives) initial and final vowels as:—

ba—be—bi—bo—bu.
da—de—di—do—du.
ab—eb—ib—ob—ub.
ad—ed—id—od—ud.

Practice of dentals and linguals: d—t—n—l—r—and of gutterals: g—ch—k.

Use combinations as found in approved lists by modern authorities.

Note:—Take up about one-fourth of time for this work.

Exercises to Stimulate Language Centers. To correct imperfections in sequence of words.

Count to 100.

Recite alphabet.

Recite any known poem as: Village Blacksmith, Lord's Prayer, Psalm of Life; this is for stimulation of motor-kinaesthetic memory, to reinstate lost form of speech utterance.

Read with him occasionally to develop confidence, then let him read alone, interpret reading.

Stimulation of spontaneous speech utterance.

Repeat words rapidly after instructor, occasionally call for sentences out of words.

Read aloud some short interesting selection, instructor helping over hard places. Reading to reorganize visual memory.

Spell familiar words.

Development of Spontaneous Speech.—Questions involving quick decisions.

Recitation between two people involving quick thought and questions. Insist upon expression by complete sentences, also on his expression of ideas by conversation.

Note:—To establish consecutive and spontaneous speech for the expression of ideas in a clear concise way, repeat sentences thought out by patient until they come easily.

For the reconstruction of speed which is faulty in that there is a lack of sequence and a dropping of words, use Harrington and Cunningham's "First Book for Non-English Speaking People." This will help to re-establish ordinary expression, and to make it more connected.

This is my head.
That is your hand.
I have one chair—*We have.*
He has one chair—*You have.*
She has one chair—*They have.*
Those are your hands.
How many eyes have you?
Show me your pencil.
Please may I have.
I am. We are.
He is. You are.
She is. They are.

Exercises.—"This" and "that" with possessive pronouns:—

Conjugate:—This is my pencil.
This is your pencil.
This is his or her pencil.
This is (our, your and their) pencil.
This is my pencil, etc.
This is *a* pencil.
This is *the* pencil.

If patient can go through the construction of all English sentences involved in English grammar, in time he will have gained back all memory of sequence of words, making connected thought.

Use Sand Paper Letters of Madame Montessori.—Trace letters one by one—saying letter (to re-establish muscular kinaesthetic memory of writing and articulatory kinaesthetic memory of verbal language).

Make vowels and consonants with mouth—exaggerate each position. Make combinations of simple vowels and consonants with mouth.

Example:—ga—ge—gi—go—gu.
fa—fe—fi—fo—fu.
Make words from combinations:—Say
ga—ge—gi—go—gu.
gate—get—give—got—gun.
Make word with letters: Example:—
gate—get—give—got—gun.
Trace word made with letters saying letters and word.
Write spontaneously words on cardboard:—
gate—get—etc.

Take each consonant with each vowel until patient knows all letters; can say them; write them; and recognize them in other words.

Use compound consonants and vowels in the same manner.

Gradually increase number of words until his vocabulary is larger. Have patient use sentences by: Saying them (re-establishing of kinaesthetic articulatory memory);

Tracing them (Muscular memory training);

Writing them (Muscular memory used in writing);

Reading them (Visual memory association)

Take simple stories and read them to patient have him tell the meaning. Then have him repeat them afterward word for word. (To establish memory of connected trains of thought and natural sequence of words.)

Articulation Lessons. (After three months' treatment.) At this time work includes: *Repeating* letters, words, phrases and sentences after instructor. Use poems that are new to him. Use: "First Book for Non-English Speaking People."

Speaking aloud: 1. Asking questions.

2. Responding to questions.

3. Giving in his own words the gist of a story read to him.

4. Have him recite poems that he has known or has learned recently.

5. Make sentences—having given three substantives (as: pencil, paper, letters).

6. Conversation to bring out reasoning—quick thought, and connected sentences.

Reading: 1. Read lessons in the "First Book for Non-English Speaking People."

2. Read poems he has known at one time.

3. Read poems he *does not know*, also prose can be read that he *is not* familiar with the thought that it contains. Prose that he is familiar with.

Writing: Write sentences to dictation.

Alphabet and spontaneous sentences.

Spelling: He is reading some sentences to himself and giving the material back without looking.

The patient now shows considerable progress.

Repeats: "Lord's Prayer" and "Psalm of Life" without mistake. Leaves out *no words—skips no words*—mispronounces only a *very* few.

Reads: Skips fewer words—leaves off a few syllables as "sudden" for "suddenly," also miscalls a few words; "muttered" he calls "murmured," but does not anticipate words and does not hesitate long on words nor does he leave out small words.

Has established all small connective words with grammar review, as *pronouns*, *articles*, *adverbs*, *verb-forms*, also *sentence form* and *natural sequence*.

Speaking: Words have better sequence. Fewer words are mispronounced. He can express himself with greater accuracy and less hesitancy. There are fewer inappropriate words used.

Spelling: Difficult yet. Unable to say correct letters but knows them.

Counting: Some mistakes in counting still. Merely articulatory.

Writing: Better sequence, etc., corresponding to speaking. He can read to himself better, understanding what he has read. This would seem to bear out the supposition that a certain amount of nervousness was a factor in the condition.

After six months' corrective speech work, R. Mc. has completely gained back all forms of speech utterance and means of communicating language either by speaking or writing.

He can talk readily and confidently, can read aloud and to himself both, as well as before the trouble occurred. This has been brought about by a consistent consideration and correction of each phase of the faulty language.

The voice which was noticeably weak at first has become stronger, more resonant, and the vibrations of time truer and more steady.

He repeats long sentences after instructor perfectly, with correct sequence of words, no word miscalled, and none left out. The emphasis is natural and he speaks with a confidence so noticeably lacking before.

He is able to recite spontaneously selections of verse which he had known before, without mistake.

There is no longer trouble with the articula-

tion depending upon the kinaesthetic memory or the production of sound necessary for speech. All letters are named correctly, all sounds made quickly and easily. On sight of letters he is able to name them immediately, when before a long period elapsed before he could pronounce or name.

He reads as readily as before, leaving out no words, miscalling no words, and in proper sequence.

The improvement in writing, while yet somewhat hampered by the paralysis, corresponds to the improvement in speech. He writes sentences correctly, leaves out no words, writes in proper sequence and readily to dictation. Misspells no words, also spells orally words which were difficult before because of failure of emission of speech.

All this goes to show that case has regained the power of emitting language by speech and writing which he had partially lost; that whatever difficulty lay in the centers having to do with the memories of articulate speech and muscular kinaesthetic memory of writing has been cleared up. He has re-established those memories by constant repetition, and by daily practise of exercise carefully planned to develop the powers of communicating thought and regaining his confidence.

905 Keenan Building.

SYPHILIS OF THE STOMACH.*

By F. C. RINKER, B. A., M. D., Norfolk, Va.

Today we are more interested in the attempt to relieve symptoms by first determining a pathological cause and then treating the cause, than we are in attempting the amelioration of suffering merely by the empirical uses of drugs and surgery. Indeed, the laity are no longer satisfied with such evasive answers as "rheumatism," "indigestion," and many other such meaningless terms. On the other hand, they want to know, "What is the cause of my symptoms?"

In the search for underlying pathology, syphilis has become permanently fixed in the minds of clinicians as a possible factor in the causation of disease.

My reasons for selecting this subject for presentation to you are twofold: First, because during the past year I have had five cases of gastric syphilis who have received antisyphilitic treatment with relief, and in whom we were able to arrive at a conclusive diagnosis through the use of the ordinary methods of physical diagnosis assisted by the laboratory and the x-ray; second, to sound a warning to all, that any case giving a chain of symptoms suggesting gastric ulcer, cholecystitis, or gastric cancer, should never be considered surgical until syphilis has been ruled out as a cause.

Until three or four years ago syphilis of the stomach was considered more or less a medical curiosity; now it offers an alluring, difficult, and yet wholly satisfying, problem in the diagnosis of diseases of the gastro-intestinal tract. Barker, in MONOGRAPHIC MEDICINE states, "Syphilis of the stomach is very rare in adults, though it may cause ulcer or gummatous infiltration."

The apparent rarity of the disease has, I believe, been due to the fact that the symptomatology and clinical findings of the condition have not been put on a sound diagnostic basis and, therefore, the disease has not been described in text books. Mistakes resulting from these difficulties are excusable, but it is possible that many cases of syphilis of the stomach have been either operated upon or allowed to go on into a hopeless condition because of insufficient study and consideration in an attempt to reach a pathological conclusion.

The symptoms of gastric syphilis have been described by some authors as follows: Pain, tenderness over the epigastric region, at times nausea and vomiting, and occasionally emaciation.

In this series of five cases, all of whom were seen during 1920, four were white and one colored, three were male and two female. The ages were 25, 31, 34, 45 and 57 years.

CHIEF COMPLAINT: Four complained of pain in the pit of the stomach and on the right side; one had nausea without vomiting; one complained of vomiting and said he had vomited blood several times (this patient also suffered from marked weakness, while the others felt well except for their gastric symptoms); all of them had burning in the stomach when they went without food; four were relieved of the burning by taking either food or soda, this relief lasting only for one or two hours; all had dyspnoea on exertion; two were disturbed frequently by accumulations of gas on the stomach and intestines; three had lost from 20 to 35 pounds of weight in less than a year's

*Read before the Tri-State Medical Association of the Carolinas and Virginia, at Spartanburg, S. C., February 16-17, 1921.

time; one had gained in weight; one had had jaundice within two months prior to our seeing him; all had been somewhat nervous for several months, but the nervousness was not extreme and the only thing that disturbed their sleep was either pain or nausea.

Past History: All of these cases had had the usual diseases of childhood without complications; one had had his appendix removed six months before we saw him. He stated that his symptoms had not been relieved by this operation.

Social History: Two of the men denied venereal infection; one said he had chancre at the age of 18. The wives of all three men had healthy children. Each of the women gave normal menstrual and child bearing histories, each having four children and one had had one miscarriage.

Family History: Unimportant.

Physical Examinations.

General Appearance: Three showed evidences of loss of body flesh; two were very pale and slightly jaundiced; all were normally developed.

Nose: One case had severe hypertrophic rhinitis.

Throat: One had badly diseased tonsils and there were white ulcerations on the pharynx and in the roof of the mouth which looked like mucous patches.

Mouth: Three cases had extensive pyorrhea alveolaris and carious teeth.

Glandular System: One had palpably enlarged glands in the cervical, occipital and inguinal regions.

Cardio-Vascular: There were no organic lesions. The blood pressures were as follows:

Age 25	140/90
" 31	130/80
" 34	134/75
" 45	135/85
" 57	160/100

Respiratory System: All were normal except one who showed several small areas of consolidation at both bases—suspected to be syphilitic.

Abdomen: All cases were tender over the right upper quadrant and over the epigastric region. A small irregular movable mass could be felt in the region of the pylorus, in two of the cases.

Nervous System: No gross abnormal signs or symptoms.

Genitalia: No abnormalities having any bearing on these cases.

X-ray Reports: I am indebted to Dr. S. B. Whitlock for the x-ray work done on this series of cases.

By Fluoroscope: All cases showed the stomach to be normally placed except one in which there was considerable gastroptosis. Two cases showed marked enlargement of the stomach and all of them showed a constant rugged appearance on both curvatures near the pylorus; this condition was most marked on the greater curvature.

These defects in the stomach were of greater extent and more pronounced than those found in gastric ulcer cases, yet they were not at all typical of malignancy. In three instances, there was a normal duodenal cap and, in two, there was no cap formed.

By Roentgenography: The fluoroscopic findings were confirmed. The emptying time in all cases was within six hours and in two cases it was less than four and a half hours. The intestines, in all cases, showed nothing abnormal.

Laboratory Reports.

Urine: There were evidences of a mild nephritis in one case. The renal function was within the normal limit in all cases.

Blood: There was a mild secondary anemia in three of the cases, the lowest hemoglobin being 50% and the lowest erythrocyte count being 3,590,000. In two instances, the lymphocytes were slightly increased at the expense of the polymorphonuclears. There was a leucopenia in two cases, the other leucocyte counts being within normal limits.

Blood Wassermanns: Were all four plus by acetone insoluble and cholesterinized antigens.

In each of these cases I felt justified in making a diagnosis of syphilis of the stomach and antisyphilitic treatment was begun.

Three of the cases have been under treatment for more than eight months and, so far as their gastric symptoms are concerned, they are cured. Wassermanns made on these cases recently were negative. The other two cases have only received treatment for several weeks but both state that, following the third arsenobenzol injection, their stomach symptoms had begun to disappear.

After studying this series of cases and after reviewing a great deal of the literature on the

subject, I have concluded that there is no definite clear cut chain of symptoms and no conclusive clinical findings upon which we are justified in arriving at a real diagnosis, but that the diagnosis of such conditions can only be made by careful exclusion of other possibilities, the accomplishment of which can only be reached by the recording of a complete history and the doing of a thorough physical examination, these two methods being aided by the x-ray findings and by the laboratory reports.

Sarah Leigh Clinic.

GASTRO-ENTEROPTOSIS.*

By MATT. OTEY BURKE, M. D., Richmond, Va.

Is this a disease or merely a mechanical condition? That it can lead to a diseased condition can hardly be denied; that it aggravates any co-existing disease of the pleural or abdominal cavities is practically certain.

Embryolgy.

The primitive intestine is originally a straight tube formed by the infolding of the hypoblast and is divided into three parts: [1]"the fore-gut, mid-gut, and hind-gut. From the fore-gut the pharynx, the oesophagus, the stomach and two-thirds of the duodenum; [2]from the hind-gut the rectum, sigmoid, descending colon and splenic end of the colon are developed. The rest of the intestine is developed from the mid-gut."

[1]"The changes that take place in the fore-gut are as follows; the middle part becomes dilated to form the stomach and undergoes a rotation to the right, so that the posterior border, by which it is attached to the vertebral column by a mesentery, is now directed to the left and the anterior border to the right. At this time it is straight, but it soon undergoes a lateral curve or bend to the right at its upper end. It thus assumes an oblique direction, and the left border, originally the attached border, becomes inferior and forms the great curvature. The mesentery by which it was attached becomes the great omentum. The part of the fore-gut below the stomach forms the duodenum.

"The hind-gut is also a closed tube and from it are developed the rectum, sigmoid and lower part of the colon.

[1]"The mid-gut is at first an open cavity, freely communicating with the umbilical vesicle. As the body walls grow, this communication contracts very materially, though it still exists to a certain extent, and its open cavity becomes converted into a straight tube, still open where it communicates with the umbilical vesicle.

"This tube grows rapidly in length, and presents a primitive curve or loop downward and forward and, in consequence of its growth exceeding that of the walls of the body cavity, a portion of the loop protudes into the stalk of the umbilical vesicle. At a subsequent period, however, the walls of the abdomen grow more rapidly than the intestine, which again recedes into the body cavity.

"At a short distance below the most prominent point of this loop a diverticulum arises, which marks the separation between the large and small intestine. The lower part of this diverticulum forms the vermiform appendix; the proximal part, by its continuous growth, constitutes the caecum.

"After this the anterior or upper part of the gut, corresponding to the small intestine, rapidly increases in length and about the eighth week becomes convoluted. The lower or posterior part, corresponding to the large intestine, is at first less in caliber than the upper part, and lies wholly to the left side of the convolutions of the small intestine; but later on the curve of the large intestine begins to form, and the first part, the ascending colon, slowly crosses over to the right side, first lying in the middle line just below the liver. It is not until the sixth month that the caecum descends into the right iliac fossa, and so drags the ascending colon into its normal position in the right flank."

Supports of the Stomach.—The lesser omentum, from the transverse fissure of the liver to the lesser curvature of the stomach; the gastro-phrenic ligament, from the diaphragm to the cardiac end of the stomach; the gastro-splenic omentum. Behind the stomach is the caeliac axis also the solar plexus; branches from both help to support the stomach.

Duodenum.—The ascending portion is freely movable; the descending portion is firmly fixed by the head of the pancreas on the left and the peritoneum in front.

Small Intestine.—The small intestines are held in place by the mesentery which is con-

*Read at the meeting of the Tri-State Medical Association of the Carolinas and Virginia, at Spartanburg, S. C., February 16 and 17, 1921.

nected to the middle of the cylinder of the small intestine and connects the convolutions with the posterior wall of the abdomen. Its root is about six inches long, and extends from the left side of the second lumbar vertebra to the right sacro-iliac symphysis.

Large Intestine.—Ascending mesocolon, descending mesocolon, costo-colic ligament, hepato-colic ligament and the transverse mesocolon. The most firmly fixed parts of the gastro-intestinal tract are the cardiac end of the stomach, the descending portion of the duodenum and the splenic angle of the colon.

Other Supports.—The abdominal muscles in front, the spinal column behind and the diaphragm above, which is connected by the pericardium to the cervical fascia.

Etiology.

1. Defects of rotation and development.
2. Weakened musculature.
3. Rapid loss of flesh and general weakness.
4. Frequent pregnancies.
5. Attitude.

Mechanical Effects of Ptosis.—Ptosis of the stomach produces a stretching and narrowing of the pyloric end; the pyloro-duodenal angle becomes more acute; the ascending portion of the duodenum may be so pulled down that it makes an acute angle; pressure on the common duct; a strain on the nerves and caeliac axis; pressure on the pancreas; lowering of the great omentum; more or less strain on all of the ligaments and mesenteries; strain on the diaphragm and through the diaphragm on the cervical fascia.

Ptosis of the small intestines produces a strain on the mesentery and back, pressure on the bladder and pelvic organs.

Ptosis of the colon produces a strain on the hepato-colic ligament, right and left mesenteries, costo-colic ligament and pressure on the bladder and pelvic organs.

General Effects of Ptosis.—Many people have congenital ptosis and so long as the general nutrition and strength are maintained no inconvenience is felt, but, when the body becomes weakened and emaciated, the ptosis becomes exaggerated, the angles become more acute, stasis is produced, toxins are absorbed, increasing the weakness, producing further sagging, adding to the already existing irritation. Ptosis of the stomach does not necessarily mean stasis so long as the pyloric outlet is natural and the musculature is normal. Let such an individual become run down by disease or a sedentary life and continue to over load the stomach; what happens? Peristalsis is decreased; the extra weight causes further sagging, the duodeno-pyloric angle becomes more acute; possibly enough pressure is produced to impede the vascular supply and to irritate the pneumogastric and sympathetic nerves; either increasing or decreasing the HCl with fermentation or decomposition of the stomach contents, the formation of gases, foreign acids, etc.

Ptosis of the small intestine may cause backache by pulling on its mesentery when the gut has an extra amount of work thrown on it by the stomach emptying its over load of fermented or decomposed products; or the terminal ileum may be too weak to propel the contents through the ascending colon. Ptosis of the transverse colon nearly always accompanies ptosis of the stomach on account of the weight from above and lack of support by the great omentum. The angles do not sag so much as the middle portion. Sagging of the transverse colon means an up-hill journey to the splenic flexure, which means an increased force on the part of the musculature; the increased resistance and decreased force necessarily result in more or less stagnation. Stagnation in the terminal ileum and transverse colon are always accompanied by absorption of toxins.

Symptoms.

1. Attitude.
2. Gastric and intestinal stasis.
3. Pain in the abdomen and back.
4. Neurasthenia.
5. Sulcus between costal margin and umbilicus.

[3a]"The attitude is that of physical weakness. The individual is round shouldered and flat chested, standing with the head drooping and arms hanging in front of the center of gravity of the trunk. The waist line is high, the lower abdomen protuberant, giving in uncorseted women not infrequently the appearance of pregnancy.

"The costo-vertebral angle is more acute than normal. The lumbar curve of the spine is usually obliterated, giving rise to the straight

back, although occasionally the lumbar curve is exaggerated to the point of lordosis. The muscular developement is below par and the patient is usually thin and anemic.

"Closer observation shows that the abdominal cavity is narrower above than below, because of the flattened chest and straight spine."

While the attitude does predispose to ptosis, congenital ptosis or acquired ptosis is a very potent factor in producing the ptotic attitude in the growing child.

Diagnosis.

The ptotic attitude, epigastric sulcus, prominent hypogastric and ileac regions, gastric and colonic tympany below the umbilicus, are pretty strong evidence of ptosis.

The X-ray is con-clusive and should always be used if possible.

Treatment.

So much can be done for these patients and so much can be said about each method of treatment, that I shall simply give an outline, reserving the treatment for a future paper.

The treatment may be considered under three divisions;

1. Medical (hygienic, dietetic and calesthenic.)
2. Mechanical.
3. Surgical.

Medical.—Simple laxatives and general tonics in way of drugs, remembering to give as little medicine as possible.

Hygienic.—Cold showers on rising, unless contraindicated; sunshine and fresh air; freedom from worries as far as possible.

Dietetic.—A laxative diet, especially green vegetables, fruits, nuts, honey and bran; four or five meals per day, avoiding heavy meals at any time. Rest after meals, raising and massaging the stomach with the hands one or two hours after meals.

Calesthenics.—Martin has given eight exercises especially useful in overcoming constipation and in strengthening the abdominal muscles.

Mechanical.—Adhesive plaster, corsets and abdominal supports or bandages. All supports should be applied with the patient in the Trendelenburg position. Corsets should fit tightly at the bottom, moderately tightly in the middle, and loosely at the top.

Surgical.—Many operations have been devised for ptosis; some have proven a success and others a failure.

It would be a great economical factor if the public schools could adopt a system of examinations for ptosis, requiring each child to be examined every two years, and prescribing the proper attitude, exercise and diet. The diet could not be enforced but the attitude and exercise could be carried out to a considerable extent at the school.

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204 East Franklin Street.

Public Health

In The Tuberculosis Field.

History of Tuberculosis Mortality.

With the course of tuberculosis mortality for the sixty-year period from 1858 to 1918 as a background, some highly interesting figures are presented by the Statistical office, Field Investigations, United States Public Health Service. Taking Massachusetts figures as typical of the great majority of registration States during the past twenty years, the annual rates are plotted on a logarithmic scale, starting with the year 1858, with a rate of 400 deaths per 100,000 population from pulmonary tuberculosis. From 1885 to 1915 the rate of decline is shown to be fairly constant, recorded in a straight line on the chart from a rate of 300 to a rate of less than 120. In 1915 a rise occurred and this was followed by a further quite marked increase in 1918, clearly a departure from the course of pulmonary tuberculosis mortality during the preceding thirty years. On the heels of the marked increase of 1916-1918 followed a marked decline in the death rate for 1919-1920. English observers see a real decline in the destructiveness of tuberculosis, as a result of their study of comparative rates.

Twenty-four registration States of the

United States reported in 1914 a mortality rate of 123; in 1918 a rate of 130, and in 1919 a rate of 109. Figures for England and Wales showed a rate of 105 in 1914; in 1918 a rate of 134, and in 1919 a rate of 102.

Closer scrutiny of the reports in the United States for the period 1913-1920, taking the New York State figures as typical, bring more light on the situation with respect to the influenza epidemic. It was found that the seasonal curve for each year was quite uniform during the period 1913-1917, but that in 1918, 1919 and 1920 it presented irregularities. It was clearly shown that in the months in which influenza was epidemic the tuberculosis death rate rose to abnormal proportions, and the same phenomenon appeared in England and Wales. Yet, with the exception of the periods of influenza epidemic, the rate for every month was lower in 1918 than in 1917 or previous years.

It is concluded: (1) That the steady decline prior to the war was interrupted by a widespread, definite rise through 1918, followed by marked decline in 1919 and 1920; (2) the high rate for 1918 was apparently due entirely to the two waves of influenza epidemic and the rate for 1920 was probably somewhat increased by the 1920 epidemic influenza wave; (3) discounting the effect of the influenza epidemic, the existence of an unusual wave of mortality from pulmonary tuberculosis is still clearly shown, beginning in 1916, reaching its crest in 1917 and declining in 1918, 1919 and 1920.

Commenting on the course of tuberculosis mortality in England and Wales (report of Registrar-General, *British Medical Journal*, February 5, 1921, page 202) Stevenson writes that the recent trend of tuberculosis mortality can only be profitably studied by disentangling it from the mortality caused among the tuberculosis population by influenza. When this is done, he considers that the figures show tuberculosis mortality reached a maximum in 1917, and that a decline set in during the last year of the war and developed to a remarkable extent during the first year of peace.

"If," he says, "influenza increased the death rate . . . by killing off tuberculosis patients who would otherwise have died a little later, the great fall which has occurred since the epidemic came to an end may be in part attributable to this earlier removal of persons who would otherwise have died in the quarters of low mortality."

He does not, however, consider that this is a serious source of error. There is no evidence that mortality from the non-pulmonary forms of the disease was increased by the epidemic; these non-pulmonary rates were very low in 1919, and this is thought to point to a real decline in the destructiveness of tuberculosis.

The State Board of Health has accepted the resignation of Dr. Walter C. Klotz, medical superintendent of Blue Ridge Sanatorium, Charlottesville, Va. Dr. Klotz resigned to take the medical directorship of the National Sanatorium at Johnson City, Tenn.

B. L. T.

Proceedings of Societies

The Nelson County Medical and Surgical Society

Met in regular session at Lovingston, May 23, the following members being present: Drs. J. C. Everett, D. C. Wills, F. M. Horsley, W. M. Tunstall, J. B. McKee, J. B. Woodson, and H. S. Dickie. Drs. J. B. Woodson and J. B. McKee were elected new members.

The following resolutions were adopted:

1st. Resolved, that the members of the Nelson County Medical and Surgical Society are opposed to the removal of the Medical Department or any other department of the University of Virginia to Richmond or to any other place, now or at any other time. That the members of this society vote for and support only those candidates at the primary election to be held August 2, 1921, for the Virginia House of Delegates, who will cordially vote for and advocate this resolution.

2nd. Resolved, that owing to the scarcity of trained nurses, especially in rural sections of Virginia, the delegate from this Society to the Medical Society of Virginia, at its next annual meeting, be, and he is hereby instructed to advocate some plan whereby this shortage of nurses, so detrimental to the physician in his work and to his patients may be corrected.

J. F. Thaxton, Secretary.

The man who is always leaving his job should consider the postage stamp; it sticks to one thing till it gets there!—Selected.

The Augusta County (Va.) Medical Association, Inc.,

Held its annual meeting in Staunton, August 3, Dr. H. M. Wallace, of Fishersville, presiding. Business of importance to both city and county doctors was discussed and Dr. C. P. Obenschain, of New Hope, was elected to membership. Papers were read by Drs. H. Welland, of Canton, O., and Drs. F. J. Fulton and M. J. Payne, of Staunton. These were all freely discussed.

New officers elected for the ensuing year are: President, Dr. W. S. Whitmore, Staunton; vice-presidents, Drs. John Freed, Staunton, R. S. Griffith, Basic City, and T. M. Parkins, Staunton; secretary, Dr. J. F. Fulton, Staunton; treasurer, Dr. A. F. Robertson (re-elected), Staunton; and censor, Dr. Geo. H. Thomas, Staunton.

Secretary's Announcement

Build Up Our Library.

Use of our Circulating Library continues to increase. Several members of the Society are on a waiting list for some of the books. A very large number of those who have borrowed books send in additional requests along with the books they are returning. Our library should be so well supplied with the new books that the needs of members of the society could be met promptly. An interesting feature in connection with the library is the renewal of interest in the society's affairs taken by members who are using these resources of the organization.

What do you think of the establishment of a Circulating Library by the Society? Suggestions looking to its development and enlargement will be welcomed.

Exceptionally Good Risks.

During the past eight months physicians who have had their automobile insurance written in the Society's office have had all their losses paid with less than five per cent. of the amount paid for their insurance. On an annual basis this will cost about eight per cent. of the premiums demanded.

The average for the general public is only thirty-eight per cent. These figures show that physicians from an exceptionally good class as to risk. However, instead of getting a fair rate from the companies, they are penalized in that they do not get the reduction allowed the general public for private use or where the car is owner-driven exclusively.

Our figures are based on a comparatively small number of risks. They are fortified, however, by a rather careful examination of the records in the city of Richmond with more than three hundred physicians using automobiles. Reducing all the rates and percentages to dollars and cents, the actual losses caused by physicians while driving automobiles could be covered by an annual cost of five dollars per annum for city physicians and about half that for those in small towns and rural districts.

The reason for this is quite clear. Physicians form an exceptionally intelligent class with the well trained mind's attitude towards the welfare of their fellow-men. In addition their life work is the protection and lengthening of human life, and they govern all their activities with this object in view. It is their business to protect life and they are regardful of it when driving automobiles.

Assuming that half the physicians in the United States carry liability protection, the failure of the companies to appreciate the facts as set forth here costs these men about one and a half million dollars annually more than it should.

We are confident that the arrangement under which we are now handling this business is the best obtainable at the present time. Physicians who place their insurance through the Society's office may feel reasonably confident of saving at least thirty per cent. of the cost of their policies.

Delinquent Members.

Continuous effort has been put forth to eliminate all arrearages from the books of the Society. At the present time ninety members are still in debt for assessments up to and including 1920. Twenty-six of these men owe four dollars each, twelve owe six dollars each, thirteen eight dollars each, and the remainder from ten to twenty dollars each. We regard all of these as collectible accounts and have no intention of relinquishing our moral and legal claims. As fast as we can locate the men in arrears, we ask for a settlement. The courteous and prompt attention given our letters by the members is greatly appreciated.

G. H. Winfrey,
Secretary-Treasurer.

The Truth About Medicine

During June the following articles have been accepted by the Council of Pharmacy and Chemistry for inclusion in New and Nonofficial Remedies:

The Abbott Laboratories:
Saligenin.
Armour & Co.:
Suprarenalin Base.
Suprarenalin Ointment.
E. Bilhuber:
Santyl Capsules.
The Calco Chemical Co.:
Amidopyrine-Calco.
Hynson, Westcott & Dunning:
Tablets Mercurochrome 220—soluble.
H. A. Metz Laboratories:
Orthoform.
Winthrop Chemical Co.:
Mesotan.
Nonproprietary Articles:
Amidopyrine.

Book Announcements

Operative Surgery. By J. SHELTON HORSLEY, M. D., F. A. C. S., Attending Surgeon, St. Elizabeth's Hospital, Richmond, Va. 721 pages, with 613 original illustrations. Illustrated by MISS HELEN LORRAINE. St. Louis: C. V. Mosby Company. 1921. 8vo. Cloth. Price $10.00.

Dr. J. Shelton Horsley has recently given to the surgical world his volume "Operative Surgery," which only in the last month has been published and which we gladly welcome. The volume has over 700 pages and 613 illustrations, which are clear, definite, facile and do not have to be studied to understand the anatomical relationships of the intention of the operator.

Dr. Horsley's standards in surgery are well known. For three successive years he has been elected Chairman of the Council of Scientific Assembly of the A. M. A., which we take as an indisputable recognition of his merit. A certificate of merit in blood vessel work has likewise been given to Dr. Horsley by the American Medical Association, he receiving in Detroit two years ago a bronze medal for research work of unusual character. The Southern Medical Association likewise has recognized Dr. Horsley's contributions, in that they presented to him in November, 1916, a gold medal, the committee on presentation being Matas, Bloodgood and Crook. Such an honor has only been given once before, to Bass of New Orleans for his monumental achievement in growing artificially the malarial plasmodium.

Particular attention would be called in the consideration of his monograph to the first sixty pages or so, which reviews the practice of surgery, the physio-pathological state of the living, and the essential application of the mechanical principles of surgery to the knowledge of biologic science. Dr. Horsley's classification of surgical drainage, of the character of drainage material, and his classical presentation of the more recent theories of shock and hemorrhage are most clear, instructive and readable. We would also like to point to the chapter embracing surgery of the blood vessels, ligation, transfusion and aneurism, as his many contributions to this literature and his work, both research and clinical, have put him in a peculiar point of vantage to pass authoritatively upon the worthiness of the different methods to be employed and the indications for their employment; we would wish that the size of the volume had not been limited, so that this particular feature could have been exhaustively considered at his hands. The illustrations and photographs of the work in plastic surgery of the face, hare-lip and cleft palate are particularly attractive, and Dr. Horsley's description of applied mechanical principles are well worth a thorough study. In chapter XXV a classical resume physiological, pathological and operative, is recorded about the stomach. Those of us who have witnessed Dr. Horsley's work know his strong advocacy of pyloroplasty plus excision of the ulcer bearing area; only in rare instances does he employ the posterior gastroenterostomy, stating that in addition to the advantages of pyloroplasty having a normal course for the gastric contents, excision of the ulcer, and bathed by the physiological acidity "the dangers of vicious circle, jejunal ulcer, volvulus or hernia into the lesser peritoneal cavity, though not great, exist when a gastroenterostomy is done and are not present after operations on the pylorus."

Many attractive features in the discussion of operations are found throughout the volume. The easy style of the writer would commend the book to all surgeons even if it did not possess the high type of scientific surgery which is found on every page. It may be that we are particularly interested in this book because we are Virginians and take a pride in all that has to do with our State, but we believe that the value and scientific merit of Dr. Horsley's "Operative Surgery" will speak for itself and commend its recognition to all surgeons.

ROBERT C. BRYAN.

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, M. D., APRIL, 1874.

OWNED BY THE MEDICAL SOCIETY OF VIRGINIA.
PUBLISHED BY THE PUBLISHING COMMITTEE.

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B. R. TUCKER, M. D., Richmond, Va.
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ALEX. G. BROWN, Jr., M. D.,
Editor.

G. H. WINFREY,
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Editor's Assistant and Assistant Manager.

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: $2.00 per annum in advance.
Single Copies 20c.

Vol. 48 AUGUST, 1921. No. 5.

Editorial

Fecal Fat.

The pancreas has an external secretion and an internal secretion. The internal secretion, formed, it is thought, in the islands of Langerhans, passes through the lymphatics, thoracic duct and the blood stream, to the muscles where it performs the function of controlling the carbohydrate metabolism by processes not yet fully determined. The deprivation of the body of this internal pancreatic secretion is associated with the appearance of sugar in the urine. Allen's experiments in diabetes are interesting in dealing with this factor in the unsolved etiology of diabetes. But it is to the effect of external secretion upon the appearance of fat in the stools and its significance that we wish to direct attention at this time.

The pancreas furnishes the body with from 500 to 800 c.c. of pancreatic juice daily. The amount, of course, varies with the food and other conditions. A diet rich in carbohydrate excites a larger flow than a diet of protein. The presence of hydrochloric acid in the stomach chyme affects the amount; when increased, the discharge of pancreatic juice is greater; when absent or greatly diminished, the pancreatic juice is less in amount. Adrenalin and atropin administration decreases the secretion of pancreatic juice and high blood-pressure also appears to decrease it. This juice contains three ferments and digests all the forms of food taken by the human. The close relation of the infected common bile duct with the pancreatic duct is the frequent cause of pancreatic disturbances.

Fecal fat is a clinical factor connected with pancreatic misfunctionation. While it was once believed that pancreatic juice was not essential to digestion, it is now generally accepted that it plays a most important role in proper digestion. Authors have reported experiments showing that there is a great diminution in absorption of nitrogen and fat (in dogs) when pancreatic juice is absent in the intestine. While some fat splitting goes on after excluding pancreatic juice from the intestines, fat absorption is interfered with through some as yet undetermined factor in pancreatic juice. As a result, cases of diminished pancreatic secretion, fat splitting and absorption, which should go on in the small intestines, show, unless aided by bacterial action in the large bowels, fecal fat.

Chronic disease of the pancreas, characterized by an interference with the flow of pancreatic juice, shows loose bowel movements. These stools are usually large and unformed. They are free from blood or mucus. They are not watery. In sprue one may find stools of the same character. The nature of the stools necessarily varies with the diet being taken by the patient. The color usually is clay or white and the oil and grease drops are easily observed. The absence of bile pigment should be determined by test. The association of free fat and meat fibers in the stool points to the pancreas. The quantity of fat in these stools is enormous; the stools, if allowed to stand, show butter or cream-like masses. In some cases reported, as much as 75 to 80% of the fat taken was excreted in the stools. The loss of fat in excess of 20% may lead to the thought that the obstruction is significant of a graver pathology than that of mere pancreatic insufficiency, such as pancreatitis and cancer of pancreas.

The composition of fecal fat is unsplit (neutral) fat, fatty acids and soaps. Usually 50% is fatty acid and 20 to 50% soap. In connection with the fat, the presence of undigested meat fibers in feces, has an interesting and significant bearing. Microscopic observation of fatty stools showing bits of muscle fiber may be taken to indicate the probable absence of pancreatic juice in the intestines. This is particularly true if the muscle fibers are numerous and found after the use of Schmidt diet.

In fatty stools due to pancreatic disease, the

microscopic presence of a large number of fibers of meat indicates the exclusion of pancreatic juice, while the mere fatty stools may mean obstruction of bile or sprue. This differential indication should be borne in mind.*

News Notes

Members of the Medical Society of Virginia and Others Who Desire to Attend!

It is not too early now, even if you do not intend to prepare and read a paper, to begin to think about coming to the annual meeting at Lynchburg, October 18th to 21st, inclusive.

Lynchburg, centrally located with good railways converging from all directions, is so easily accessible that those residing in any part of the state will find schedules to suit their convenience.

There will be some who would prefer to come by automobile and while there are now several good highways leading into our city, others are under construction and when October comes, with its usually ideal weather, the lure of the road should prove irresistible to the enthusiastic motorist.

The writer motored from Lynchburg to the Petersburg meeting last fall, over surprisingly good roads, following the route of the N. & W. Railway, going and returning via Richmond, Powhatan C. H., and Farmville. Every mile was a joy and the entire trip a splendid recreation.

Begin now to lay your plans. Bring the wife and daughters. There will be a hearty welcome awaiting you all.

GEO. J. TOMPKINS,
Chairman Local Committee
of Arrangements.

Lynchburg Meeting.

The cordial invitation extended in the above notice by Dr. Tompkins, in behalf of the Lynchburg profession, should be accepted by every member of the Medical Society of Virginia, unless personal or professional circumstances prevent. Titles for a number of interesting papers have already been sent in; others will follow. The subject selected for General Discussion is "Systemic Manifestations of Chronic Local Infections", which is to be discussed by Drs. F. H. Smith, Abingdon; F. J. Wright, Petersburg, and R. L. Payne, Norfolk, under the following headings, respectively: General Considerations; Medical Treatment; Surgical Treatment.

Notices have been sent from the Society offices asking members for titles of papers. Please let us have these promptly so that you may be assigned your place on the program. Letters have also been sent to secretaries and presidents of the local societies requesting that delegates be appointed to represent the component societies at the Lynchburg meeting. Attention has further been called to the fact that councilors were to be nominated to represent the second, fourth, sixth and ninth districts. The Secretary-Treasurer, Mr. G. H. Winfrey, 104½ West Grace Street, Richmond, would be glad to have all of this information promptly.

Richmond Midwives to be Examined Before Receiving Licenses.

Reports show that more than 1,500 births in Richmond last year were attended by midwives and that the mortality record among these cases was unusually high. To overcome this state of affairs, the City Health Bureau, under the supervision of its chief health officer, Dr. C. C. Hudson, has inaugurated a plan to have all midwives receive a special course of instruction and pass examinations before receiving licenses. Beginning August 8, a series of lectures will be given for two weeks by prominent obstetricians and nurses of experience in this work. August 29 is the date which has been set for the beginning of examination of those practicing midwifery in Richmond. The board recently appointed by Dr. Levy, director of public welfare, to have charge of examinations is composed of Drs. A. E. Turman, M. Pierce Rucker, and Miss E. G. Friend, supervising nurse of the City Health Bureau. After August 29, only those midwives will be allowed to practice in this city, who have passed the required examination.

This is one of the most important measures which has recently been adopted by the Richmond Health Bureau, and it is believed it will result in the saving of a number of lives each year.

Health Officers Discuss Pellagra In The South.

A conference, presided over by Surgeon General Cumming, of the U. S. Public Health Service, was held in Washington, D. C., August 4 and 5, to discuss the incidence of pellagra in the South and to suggest plans for its prevention. This was attended by health officials

*Read Oxford Press on the subject.

from twelve Southern States, and representatives from the Red Cross and Department of Agriculture. Economic depression in Southern States, more especially in the cotton belt, is supposed to have produced an unfavorable effect upon diet, by causing an excessive reduction in animal foods and a too large use of cereals. It is thought by many that conditions are not such as to cause alarm and that there is an increase in pellagra in only about half of the Southern States, there being a decrease in other states. It is believed that co-ordination of all health agencies will assist in improving the situation.

Infantile Paralysis Reported in Virginia.

Two cases of infantile paralysis were recently reported in Rockingham County, Virginia. However, Dr. Howard Armstrong, the health officer of Harrisonburg, issued warning that all precautions should be taken to prevent a spread of the disease, and we have at this time heard of no further cases.

Carvacrol in Hookworm Treament.

In a recent report to the U. S. Public Health Service, the possibility of using carvacrol as a substitute for thymol in hookworm disease is considered by A. E. Livingston of the Hygienic Laboratory. Thymol and oil of chenopodium are the best remedies known for treating hookworm cases. Thymol is costly and, being imported, our supply is uncertain. Oil of chenopodium is a variable substance but its cost is low and the supply abundant. These as well as all other vermifuges thus far used may produce serious toxic effects or fail to remove the parasites. Thus it is evident that a more satisfactory remedy is needed.

Hixson and McKee have recently devised a method by which carvacrol may be prepared from spruce turpentine, a by-product in the manufacture of wood pulp. The supply of carvacrol is thus assured, its cost would be low, it is a liquid at body temperature so that it would probably come in close contact with the intestinal wall and it is an isomer of thymol and possibly has a similar action on intestinal parasites. With these facts in mind, experiments were made on rabbits, earthworms, and parmecia for the purpose of finding the relative toxicity of thymol and carvacrol.

The results show that these two drugs have practically the same toxicity on the animals used and, on the basis of these experiments, it is recommended that a careful clinical trial be made in hookworm cases where conditions can be carefully controlled.

General Hospitals To Take in T. B. Patients.

The opening of wards in general hospitals for tuberculous patients, as recommended by the American Medical Association at its recent annual meeting in Boston, will, it is believed by the U S. Public Health Service, be of enormous benefit not only only to most of the two million known victims of the disease in the United States but also to thousands of others in whom the disease is incipient and easily suppressible, if promptly treated. The resolution was prepared and recommended by the National Tuberculosis Association in 1916.

Such an arrangement, it is argued, should financially aid the smaller hospitals, especially; should enable patients in moderate circumstances to obtain preliminary treatment in their home towns instead of having to go without or to resorts; would prove educational to the patient's family; and would assist in familiarizing the family physician with the treatment, thus aiding him in the earlier diagnosis of cases and later home treatment of his patient and other members of the family.

Dr. Charles E. Conrad,

Of Harrisonburg, Va., is taking a six months' post-graduate work at the Babies' Hospital, New York City. He will return home about January 1, 1922, and will confine his work to Pediatrics.

Dr. R. Rush Goad,

Who has for sometime been located at Dug Spur, Va., has now moved to Hillsville, Va., where he will continue the practice of his profession.

Dr. J. T. Green,

Recently of Rose Hill, Va., has located at Coeburn, Va.

Dr. and Mrs. A. H. Deekens,

Who have been living on Forst Hill Avenue, this city, since his return from service in the Army, have moved their residence to The Darlington, 315 North Boulevard, this city. Dr. Deekens' offices are at 108 North Ninth Street.

Norfolk County Aiding in T. B. Work.

Upon request of Dr. Charles R. Grandy, who is in charge of the Norfolk City Tuberculosis Clinic, Norfolk County has made an appropri-

ation of $100 toward the work of this institution.

U. S. Training School for Nurses.

A training school for nurses of the U. S. Public Health Service is to be established by the Surgeon General. This will offer women desiring to take up the profession of nursing a course of study leading to a diploma and an opportunity to assist in caring for disabled military patients. Headquarters of the school is in the office of the Surgeon General, Washington, D. C. Training will be given in certain hospitals in the Service. Schools will open on September 1 at Fort McHenry in Baltimore and at Fox Hills, Staten Island, N. Y. The Service hospitals provide experience in all branches of nursing, affiliations being made with civilian hospitals for some subjects.

Candidates should make application in person or writing, to the Surgeon General, U. S. Public Health Service, Washington, D. C. Special consideration will be given to candidates who have taken the course in Elementary Hygiene and Home Care of the Sick with the Red Cross, or who served as nurses and aides in army or civilian hospitals throughout the war. Candidates must be between 21 and 35 years of age, must pass satisfactory physical examination, and must be graduates of a recognized high school or present evidence of an educational equivalent. The course will be three years. Credit will be made for certain qualifications.

No tuition fee will be required. A monthly allowance to meet necessary expenses will be made.

Bi-Weekly Reports on National Health Legislation.

Bi-weekly summaries of national legislation concerning public health have been issued by the National Health Council since last March, when Congress convened in special session. These summaries list and abstract all new health legislation and also report progress on bills previously outlined. The first eight statements, covering the period from March 4th to July 7th, 1921, have listed about 80 bills, dealing with some phase of public health. Forty-four of these have been discussed at length and their progress carefully followed.

The reports, which are mimeographed and average about twelve pages, were intended primarily for members of the Council. The demand for them from non-members has been so great, however, that arrangements have been made to distribute copies at 20 cents a piece, which about covers the cost of production. Since it is problematical how long the special session of Congress will last, no definite subscription price can be set for the term. With the opening of the regular session of Congress in December, it is hoped that these reports can be printed, instead of mimeographed, and a subscription price set. These legislative summaries can be secured by addressing the National Health Council, 411 Eighteenth Street, N. W., Washington, D. C. A limited supply of back numbers, covering the current session of Congress, is also available.

Dr. John H. Baird,

Who until recently has been associated with Dr. C. C. Coleman of this city in the practice of neurological surgery, has entered the U. S. Public Health Service as passed assistant surgeon with the rank of captain. He has been assigned to duty at Fox Hills, Staten Island, N. Y. Dr. Baird was recently elected by Yale University as professor of neurological surgery in their college in China, but at his request he will not be called to enter upon his duties there for another year.

Dr. James G. Lyerly,

Of the 1920 class of the Medical College of Virginia, and who has just completed an internship at Memorial Hospital, this city, has succeeded Dr. Baird as assistant to Dr. C. C. Coleman, of this city.

Senate Passes Sheppard-Towner Bill.

This bill, providing for the protection of maternity and infancy through the cooperation of Federal and State governments, was passed by the U. S. Senate on July 22 and sent to the House. The initial appropriation, $1,480,000, is to be allotted to the various states in accordance with the amount appropriated by the individual state.

Dr. R. Finley Gayle,

Who is connected with Tucker Sanatorium, this city, has returned to his work here after spending several weeks in New York City, where he did post-graduate work in nervous diseases at Columbia University.

The Section of Neurology and Psychiatry, Southern Medical Association

Has arranged a most instructive program for

the meeting at Hot Springs, Ark., next November. An exhibit of specimens and charts is being collected; those who wish to send specimens should communicate with Dr. Paul V. Anderson, Westbrook Sanatorium, Richmond, Va., who is secretary of this new section and is arranging the exhibit. Those who wish to take part in the discussion of the papers should write Dr. Tom A. Williams, 1746 K Street, Washington, D. C., chairman of this section.

The Medical Library Association.

Dr. John Ruhrah, secretary of the association, gives us its following interesting history:

This is a national association, including most of the larger medical libraries and many of the smaller ones, as well as a large number of individual members who are recruited from those of the profession or laymen who are interested in medical libraries, and medical literature.

The Association was founded in 1898 by Dr. George M. Gould, its first president, in connection with Sir William Osler. The object of the Association is the fostering of medical libraries, and maintenance of a system of exchange of medical literature among them. Any medical society, association, university or college, having a fixed home, and a library of at least 500 volumes, with a librarian or other attendant in charge, is eligible for membership. The libraries pay $10.00 a year dues, and may be represented at the annual meeting by two persons. The individual members pay $5.00 per year.

The Association has resulted in uniting those interested in a betterment of conditions in medical libraries. The annual meetings have afforded opportunities for interchange of opinions on topics relating to medical library work, the end in view being the placing of the up to date tools, that is the medical books and journals, in the hands of the profession. These meetings have been held in various places and have afforded librarians an opportunity to inspect the various libraries, both medical and otherwise. The Association maintains an exchange, which is a sort of clearing house through which books and journals are sent from one library to another.

Headquarters of the Association are at 1211 Cathedral Street, Baltimore, Md. They will be pleased to have applications for individual or library membership, or contributions of books, reprints or funds to carry on the work.

Dr. Hunter Holmes McGuire,

Who has been serving an internship at Johns Hopkins Hospital, Baltimore, since graduation from the University of Virginia Medical School, last year, has returned to this city and will be associated with his father, Dr. Edward McGuire, in the practice of his profession.

Married—

Dr. John H. Baird, recently of Richmond, but now with the U. S. Public Health Service, and Miss Emily Elizabeth Richmond, of Gate City, Va., early in July.

Dr. Everett Russell Ferguson, Toms Creek, Va., and Miss Amelia Brizzie, Chattanooga, Tenn., June 22.

The American Red Cross

Will hold a national convention in Columbus, Ohio, October 3 to 8, inclusive. Thousands of delegates are expected to be in attendance for consideration of all phases of the permanent program.

Sterilization Law Declared Unconstitutional.

We note from Eugenical News that a decision of the Supreme Court of Indiana has declared the sterilization law of the state unconstitutional. The principal point taken is that the statutes do not give the person concerned a hearing before a judicial body where he may present his side of the case and evidence. The question was also raised as to sterilization being an extra punishment not ordered by a court.

Healthmobile.

According to the *Journal of the P. I. Medical Association*, the Philippine Health Service, in connection with its health propaganda, has fitted out a truck containing motion picture equipment for both in-door and out-door exhibitions, as well as dispensary supplies for holding traveling clinics.

Dr. A. G. Brown, Jr.,

Editor of this journal, is home again after a hurried trip abroad, having been called to Carlsbad to attend a patient who had been under his care and whom he accompanied home.

Dr. S. D. Hatfield,

Until recently of Iaeger, W. Va., we are informed has moved to Kokomo, Ind., where he will specialize in pediatrics.

The American Electrotherapeutic Association

Will hold its annual meeting in Washington,

XUM

D. C., September 7-10, under the presidency of Dr. Byron S. Price, of New York City. In addition to the reading of papers, practical demonstrations will be given each day in the use of equipment to secure certain definite therapentic results. Dr. A. Bern Hirsh, of New York, is secretary of this association.

Dr. and Mrs. H. S. Belt,

Of South Boston, Va., have been recent visitors at Buffalo Lithia Springs, Va.

Dr. John D. Foltz

And family have returned to their home in this city after a visit to relatives in Lexington and Harrisonburg, Va.

Dr. and Mrs. Hugh McGuire,

Alexandria, Va., have returned home after a visit to relatives in this city. Later, they will spend some time in the North.

Work to Begin on Tokyo Hospital.

This autumn, work will be started on buildings for St. Luke's International Hospital, Tokyo, which was established and has been maintained for many years by the Protestant Episcopal Church of the United States.

Dr. W. Lowndes Peple

And family have returned to their home in Richmond after a vacation spent at Nimrod Hall, Va.

Big Chemical Exposition to be in New York.

The Seventh National Exposition of Chemical Industries will be held at the Eighth Coast Artillery Armory, in New York City, September 12-17. This event promises to be the greatest market place for chemical products and machinery since industry was established. Scientists from all parts of the world will meet there. Four hundred exhibitors have taken space. Information about the Exposition may be obtained of the management at 342 Madison Avenue, New York City.

Roanoke Doctors At Mountain Lake.

Drs. Alvah Stone and W. R. Whitman, of Roanoke, Va., have been recent visitors at Mountain Lake, Va.

Dr. William F. Drewry,

Of Petersburg, Va., has been selected chairman of the auxiliary committee to be formed in that city, in the interest of the Virginia historical pageant.

$1,000 Fee The Limit.

A policy has recently been adopted by the Johns Hopkins Medical School, forbidding a larger charge than $1,000 for professional services in any case treated at its hospital.

Dr. F. M. Perrow

Has returned to his home in Lynchburg, Va., after a fishing trip to Craig county.

Dr. A. F. Bagby,

Of this city, has moved his offices from the Franklin to the Professional Building, at Fifth and Franklin Streets.

Dr. nd Mrs. J. N. Upshur,

Richmond, are spending several weeks at Warm Springs, Va.

Dr. Guy R. Fisher,

Of New Hope, Va., was a recent visitor in Richmond.

Dr. and Mrs. I. K. Briggs,

Of South Boston, Va., in July, enjoyed a motor trip to Saranac Lake, N. Y.

Dates Announced For St. Louis Meeting.

Dates just announced for the St. Louis meeting of the American Medical Association are May 22-26, 1922. Dr. Robert E. Schlueter, St. Louis, has been appointed chairman of the Local Committee of Arrangements.

Dr. L. Duncan Bulkley,

Of New York City, has retired from the active practice of dermatology and will give his time to consultation practice and the treatment of cancer.

National Cancer Week

Is to be held from October 30 to November 5, 1921. When the whole country is interested in this subject, it should prove a most opportune time for some more definite action to be taken for the control of cancer in our State. The American Society for the Control of Cancer, 25 West 45th Street, New York City, will, upon request, furnish any information in its possession for organizing and carrying on this work.

Red Cross Nurses in U. S. Service.

The American Red Cross Nursing Service, in which 37,000 nurses are enrolled, is the official nursing reserve of the military establishments of the United States. It is announced that there are 257 Red Cross nurses still on duty

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with the Army, 131 with the Navy, and 1,163 with the U. S. Public Health Service, largely in connection with the care of disabled veterans of the World War.

The W. Va. Stte Medical Association,

At its annual meeting in Charleston, elected Dr. George A. MacQueen, of Charleston, president; Dr. Robert A. Ashworth, of Moundsville, secretary; and Dr. Hugh G. Nicholson, of Charleston, treasurer. The 1922 meeting is to be held in Huntington.

Camp Lee Medical Supply Depot Destroyed By Fire.

Fire, believed to have been caused by an explosion of chemicals, on August 4 destroyed the medical supply depot at Camp Lee, Va., causing damage estimated by government officials at $50,000. Four carloads of valuable medical supplies and surgical instruments, consigned to leave the army base the following morning and valued at $35,000, were a total loss.

Good Showing Made By Richmond Health Department.

The annual report of the Health Bureau of this city, recently issued, made a good showing as to the health of Richmond. The 1920 total death rate was the second lowest in the history of this city, being 16.46 per 1,000 population. The death rate, excluding non-residents, was 14.8 per 1,000. The death rate from consumption was 130.1 per 100,000 population, which was the lowest rate ever recorded here from this cause.

Civil Service Examinations.

The U. S. Civil Service Commission, Washington, D. C., announces open competitive examinations for medical interne at St. Elizabeths Hospital, Washington, applications to be rated as received until November 1, 1921; for trained nurse to fill vacancies in the Federal Board for Vocational Education and in the Indian Public Health Services; and for reconstruction assistant in (a) physiotherapy and (b) occupational therapy. Applications for these last named positions will be rated as received until further notice. All examinations are open to both men and women, though appointing officers have the legal right to specify the sex desired in requesting certification of eligibles.

Woman Congressman Opposes Sheppard-Towner Bill.

We understand that the only woman member of Congress, Miss Alice Robertson, of Oklahoma, is opposed to the Sheppard-Towner bill and she is appealing to the American women voters to use their influence to defeat it.

Wanted—Two assistant resident physicians for Catawba Sanatorium. This is a State institution for the treatment of pulmonary tuberculosis. Capacity, 300 beds. Forty-five hundred cases treated to date. Complete X-ray and laboratory equipment. Salary, $100 to $150 per month, with board and lodging. In replying, state experience, age, school, year graduated, married or single, and references. Address Dr. B. L. Taliaferro, Resident Physician, Catawba Sanatorium, Catawba Sanatorium Post Office, Roanoke County, Virginia. (Adv.)

Obituary Record.

Dr. V. C. Huff

Died at his home in Wytheville, Va., July 21, at the age of 87 years. He was born in Nelson County, Va., and moved to Wytheville in 1857. While in the service of the Confederate Army, he studied medicine and graduated from the Medical College of Virginia, Richmond, in 1865. Upon his return to Wytheville after the war, he practiced medicine until 1873, at which time he organized the Farmers' Bank of Southwest Virginia, and had since given his time to the success of that institution. He is survived by his widow and a son.

Maryland Virginia Griffith,

Son of Dr. R. S. Griffith, of Basic City, Va., was killed in France, while serving with the 116th infantry. His remains recently reached this country and the funeral services and burial were held near his old home on July 24. The services were most impressive and the large attendance of friends evidenced the esteem in which the young man was held.

Dr. Logan Lindsay Banner,

Castlewood, Va., died at his home in that place June 29, from general paresis. He was 63 years of age and a graduate in medicine from the College of Physicians and Surgeons, Baltimore, in 1884. He was a member of the U. S. Board of Medical Examiners for Pensions for a number of years.